Google

This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

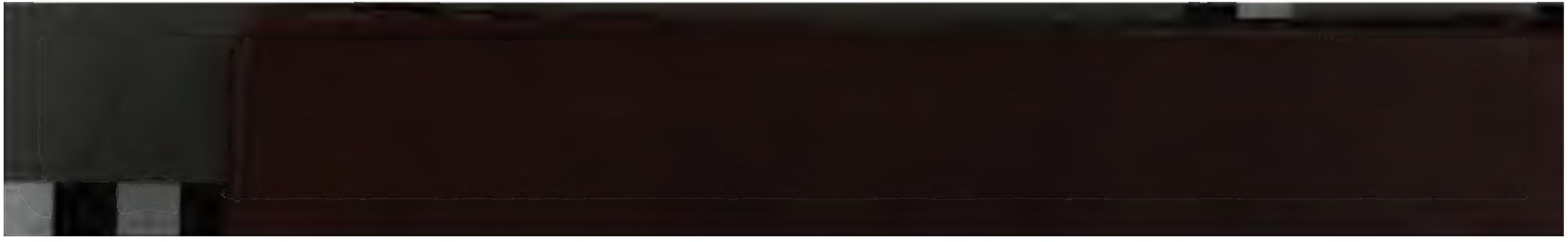
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at http://books.google.com/

LISTO
T. B. M. Mason.



THE COLLECTION OF
Theodorus Bailey Myers
PRESENTED BY
HIS WIDOW
Catalina Juliana Mason Myers
HIS DAUGHTER
Cassie Mason Myers Julian-James
HIS DAUGHTER-IN-LAW
Edmonia Taylor Phelps Mason
TO THE
New York Public Library
ASTOR, LENOX AND TILDEN FOUNDATIONS
IN MEMORY OF
Theodorus Bailey Myers
AND HIS SON
Theodorus Bailey Myers Mason
LIEUTENANT-COMMANDER
UNITED STATES NAVY
1899

A

BRIEF RETROSPECT

OF THE

EIGHTEENTH CENTURY.

PART FIRST;

IN TWO VOLUMES:

CONTAINING

A SKETCH OF THE

REVOLUTIONS AND IMPROVEMENTS

IN

SCIENCE, ARTS, AND LITERATURE,

DURING THAT PERIOD.

BY SAMUEL MILLER, A. M.

ONE OF THE MINISTERS OF THE UNITED PRESBYTERIAN CHURCHES IN THE CITY OF NEW-YORK, MEMBER OF THE AMERICAN PHILOSOPHICAL SOCIETY, AND CORRESPONDING MEMBER OF THE HISTORICAL SOCIETY OF MASSACHUSETTS.

VOL. II.

PUBLISHED ACCORDING TO ACT OF CONGRESS.

NEW-YORK:

PRINTED BY T. AND J. SWORDS,
NO. 160 PEARL-STREET.

1803.

THE NEW YORK
PUBLIC LIBRARY

ASTOR, LENOX AND
TILDEN FOUNDATIONS
R 1913 L

CONTENTS

OF THE

SECOND VOLUME.

		Page.
CHAPTER XII.	PHILOSOPHY OF THE HUMAN MIND	1
CHAPTER XIII.	CLASSIC LITERATURE	35
CHAPTER XIV.	ORIENTAL LITERATURE	54
	Section 1. *Hebrew Literature*	55
	Section 2. *Arabic Literature*	69
	Section 3. *Persian Literature*	72
	Section 4. *Hindoo Literature*	75
	Section 5. *Chinese Literature*	83
CHAPTER XV.	MODERN LANGUAGES	91
	Section 1. *English Language*	95
	Section 2. *French Language*	108
	Section 3. *German Language*	110
	Section 4. *Swedish Language*	114
	Section 5. *Russian Language*	115
CHAPTER XVI.	PHILOSOPHY OF LANGUAGE	122
CHAPTER XVII.	HISTORY	129
CHAPTER XVIII.	BIOGRAPHY	149
CHAPTER XIX.	ROMANCES AND NOVELS	155
CHAPTER XX.	POETRY.	180
	Section 1. *Epic Poetry*	185
	Section 2. *Didactic Poetry*	190
	Section 3. *Moral and Devotional Poetry*	193
	Section 4. *Satirical Poetry*	195
	Section 5. *Descriptive Poetry*	201
	Section 6. *Pastoral Poetry*	203
	Section 7. *Lyric Poetry*	205
	Section 8. *Elegiac Poetry*	207
	Section 9. *Drama*	209
CHAPTER XXI.	LITERARY JOURNALS	234

Page.

CHAPTER XXII. POLITICAL JOURNALS 247

CHAPTER XXIII. LITERARY AND SCIENTIFIC ASSOCIATIONS 256

CHAPTER XXIV. ENCYCLOPÆDIAS, &c. 264

CHAPTER XXV. EDUCATION 270

CHAPTER XXVI. NATIONS LATELY BECOME LITERARY 302

Section 1. *Russia* 303

Section 2. *Germany* 314

Section 3. *United States of America* 330

RECAPITULATION 410

ADDITIONAL NOTES 443

District of New-York, ss.

BE IT REMEMBERED, That on the seventh day of December, in the twenty-eighth year of the Independence of the United States of America, SAMUEL MILLER, of the said District, hath deposited in this office the title of a book, the right whereof he claims as author, in the words following, to wit: "A Brief Retrospect of the Eighteenth Century. Part first; in two Volumes: containing a Sketch of the Revolutions and Improvements in Science, Arts, and Literature, during that period. By SAMUEL MILLER, A. M. one of the Ministers of the United Presbyterian Churches in the City of New-York, Member of the American Philosophical Society, and Corresponding Member of the Historical Society of Massachusetts."

IN CONFORMITY to the Act of the Congress of the United States, entitled, "An Act for the Encouragement of Learning, by securing the Copies of Maps, Charts, and Books, to the Authors or Proprietors of such Copies, during the times therein mentioned."

EDWARD DUNSCOMB,
Clerk of the District of New-York.

A

BRIEF RETROSPECT

OF THE

EIGHTEENTH CENTURY.

PART FIRST.

CHAPTER XII.

PHILOSOPHY OF THE HUMAN MIND.

IF the physical sciences have received great improvements during the century under consideration, it is feared the same cannot, with truth, be said respecting the science of the human mind, and the auxiliary branches of philosophy. In this wide field, new *experiments* and *discoveries*, in the proper sense of the words, can have no place; and there are serious grounds of suspicion, that many modern systems of high claims, and imposing aspect, are, by no means, substantial additions to the sum of knowledge. There is no doubt, indeed, that we have happily gotten rid of much pedantry and jargon, which once obtained currency among the learned. We have thrown off the stiff, uncouth, and disgusting habiliments which

formerly enveloped the systems of the schoolmen. But, in many cases, there is reason to believe, that one jargon has been discarded only to adopt another equally exceptionable. Various old dresses have been laid aside, to make way for others more fashionable, indeed, but no less fantastic and odious. This character, however, though it belongs to many modern metaphysical writers, by no means applies to all. The last age has, doubtless, produced some writers, to whom we are indebted for substantial improvements, and real progress in the interesting field of inquiry under consideration. Even some of those, who taught doctrines, in general, delusive, yet have shed new light, and contributed to clear the way for those who should come after them. By many *running to and fro*, though they frequently deviated into the paths of error, *knowledge* has been, on the whole, increased.

It has been peculiarly happy for this branch of philosophy, that, in modern times, the principles and power of *language* have been more studied, and better understood, than in any preceding century. One great cause of the darkness and perplexity which so long hung over many of the doctrines of mind, was the loose and inaccurate manner in which the terms employed to explain the phenomena were used. This evil, though not entirely, has been, in some measure, corrected. The use and abuse of terms have received a more enlightened attention than in former times. The art of definition has become more precise, intelligible, and popular. The senseless prating about *occult qualities*, and the perpetual use of unmeaning words, have gradually become less fashionable. A habit of more precisely distinguishing between cause and effect, between those things which may be investigated and those which are beyond the reach of the human mind, and between those

truths which are self-evident and such as require demonstration, has been introduced, and is still gaining ground. And although the sceptical tendency of the age has retarded the progress of this department of philosophy in these various respects, yet we have reason to rejoice that so much progress, through defiles of error, has been made as to render the last age one of the most distinguished periods in the annals of the human mind.

It is, however, a curious fact, that while a much more simple and intelligible philosophy of mind has, in the course of the last age, taken the place of former perplexed and abstruse systems, yet the study of metaphysics, through the whole of that age, has been almost uniformly declining in popularity. That taste for light and superficial reading which so remarkably characterizes modern times, cannot endure the accurate, the profound, and the patient thinking, so indispensably necessary for pursuing investigations into the laws, powers, and progress of our intellectual faculties. Hence the word *metaphysics* is seldom pronounced but with contempt, as signifying something useless, unintelligible, or absurd. But the profundity and difficulty of the subject do not form the only reason of that general neglect, and want of popularity attending studies of this kind, at a period when they might be expected to command more esteem and attention. The dreams, and mystical nonsense of the schoolmen, which scarcely began to be rejected till the time of DESCARTES, and which were not generally thrown aside till after the labours of Mr. LOCKE, led a large number, even of the literary and ingenious, to decry pursuits of this nature, and to imbibe strong prejudices against them. These prejudices have descended through successive generations, and are yet far from having lost their influence. But if *mind* be our *better part*;

if its powers and activity be all important, as every one must acknowledge them to be; and if some correct understanding of these powers be intimately connected with our improvement, comfort, and usefulness; then to despise metaphysics is to despise one of the noblest objects of human inquiry, and to display a most unworthy ignorance of the comparative worth of those studies which invite our attention.

It was before remarked, that at the opening of the century, Mr. LOCKE had laid his *Essay on Human Understanding* before the world. The publication of this great work forms an era in the history of metaphysical science. The author was the first who gave, in the English language, an example of writing on such abstract subjects, with simplicity and perspicuity; and there is, perhaps, no work, in any language, "better adapted to teach men to think with precision, and to inspire them with that candour and love of truth which is the genuine spirit of philosophy."

Though DES CARTES had done much, before the time of Mr. LOCKE,[a] to correct the errors which abounded in the ancient systems of metaphysics; and though some of the leading opinions of that great French philosopher were adopted by the illustrious Briton, yet the latter was, in many respects, an original, and a reformer in science. His investigations concerning the origin and formation

[a] DES CARTES was the first metaphysician who drew a plain and intelligible line of distinction between the *intellectual* and *material* world, or between *spirit* and *body*. The importance and utility of this distinction are obvious. He was the first who showed that the analogical mode of reasoning, concerning the powers of the mind, from the properties of body, is totally erroneous; and that accurate reflection on the operations of our own mind, is the only way to gain a just knowledge of them. It was his philosophy which threw the *phantasms*, the *sensible species*, the *substantial forms*, &c. of the old systems into disgrace, and introduced a more simple, perspicuous and rational method of investigating metaphysical truth.

of ideas, concerning the use and abuse of terms, and concerning the extent and limits of our intellectual powers, are well known by those conversant with the philosophy of mind, to display many new doctrines, and to place their author among the most profound thinkers. Mr. LOCKE differed from DES CARTES with respect to the origin of our ideas. The latter thought some of them were *innate;* the former maintained that there are no innate ideas, and that they are all derived from two sources, *sensation* and *reflection.* DES CARTES supposed that the essence of mind consists in *thought,* and that of matter in *extension;* while LOCKE believed that the real essence of both is beyond the reach of human knowledge. The British philosopher explained more distinctly than any one had done before him, the operations of the mind in classing the various objects of thought, and reducing them to *genera* and *species.* He was the first who distinguished in substances what he calls the *nominal essence,* or that generic character, and specific difference, which may be expressed by a definition, from the *real essence,* or internal constitution, which he supposed could not be known; and who, by means of this distinction, pointed out the way of bringing to an issue those subtle disputes, particularly the controversy between the *Nominalists* and *Realists,* which had puzzled the schoolmen for ages. He showed, more satisfactorily than preceding inquirers, how we form abstract and general notions, and the use and necessity of them in reasoning. He first expressed the distinction between *primary* and *secondary* qualities, though the ideas implied in this distinction seem to have been in some measure understood by DES CARTES. And, finally, Mr. LOCKE had much merit peculiar to himself, in exhibiting the ambiguity of words, and by this means solving many difficult

questions which had tortured the wits of former metaphysicians.[b]

From the date of this great man's work, the old *Ontology* and *Logic* have declined. The philosophy of mind has assumed a more simple, popular, and intelligible aspect. And although it has been since made to appear probable, that some of the doctrines which he taught are erroneous, especially the theory of perception, which he adopted from his predecessors; yet that he contributed more than any other individual of modern times to develope the nature and operations of the human mind, and to introduce a more rational and correct mode of philosophising on this subject than had before prevailed, seems to be generally admitted.

Not long before Mr. Locke published his celebrated *Essay*, Father Malebranche, a learned and acute metaphysician of France, in a work entitled *Recherche de la Verité*, or *Inquiry after Truth*, published a doctrine which soon led to singular consequences. He laid it down as a principle, which, indeed, had then been admitted by all preceding philosophers, that we do not perceive external objects immediately, but by means of images, or ideas of them present to the mind. In order to account for the production of these ideas in the mind, he maintained that the soul of man is united with a being possessed of all perfection, who has in himself the ideas of every created being; and therefore that we see all things in God. Malebranche was sensible that this system left no evidence of the existence of a material world; for if the mind sees all things in God; or if the Divine ideas alone are perceived by us, we cannot be certain that the various forms of matter around us exist, since the ideas in the Eternal Mind were

b See *Essay on the Human Understanding*, passim; and Reid's *Essays on the Intellectual Powers of Man*, vol. i. Essay 2. chap. ix.

the same before any creature was made. This consequence he candidly acknowledged, and maintained that the only evidence we have of the existence of a material world, is derived from Revelation, which assures us that God created the heavens and the earth, and that the *Word was made flesh*. This doctrine was vigorously and ingeniously opposed by its author's countryman and cotemporary, ANTHONY ARNAULD, Doctor of the Sorbonne. But though the latter succeeded in showing the weakness and fallacy of the reasonings which he attacked, he was not equally successful in establishing a consistent and satisfactory theory of his own. The system of MALEBRANCHE, however, notwithstanding its visionary character, was warmly espoused by Mr. NORRIS, an English divine, who, in 1701, published a large and laborious work, designed to explain, support, and extend it. He went beyond the French philosopher, on the subject of the material world; for although he maintained the *probability* of its existence, he denied our having any evidence absolutely decisive that this is the fact.

In 1710 a doctrine still more singular and daring was announced by GEORGE BERKELEY, a philosopher of Ireland, and afterwards Bishop of Cloyne. This gentleman, equally distinguished for the penetration and comprehensiveness of his mind, the extent of his learning, and the eminence of his virtues, denied the existence of a material world; contending that what are usually called sensible objects without us, are only ideas in the mind; that there is nothing in the universe but spirits, and ideas, or images subsisting in, and perceived by them. He differed from Mr. LOCKE in several other respects besides this. He discarded *reflection* as a source of ideas; he divided the objects of human knowledge into two kinds, *ideas* and *no-*

tions. The first, according to him, are presented to us by our five senses; they have no existence when they are not perceived, and exist only in the minds of those who perceive them. The second kind of objects he supposed to comprehend spirits, their acts, and the relations and habitudes of things: of these, he contended, we have *notions* but not ideas. But of all the opinions taught by this great and good man, none have rendered him more famous, than his denial that those prototypes of our ideas, usually called material objects, have any real existence; and contending that all the varied beauties of creation which we behold, are nothing more than fancies or images impressed on the mind for wise purposes, by the omnipotent Creator.[c]

Although, as was before observed, Father MALEBRANCHE shrunk from this bold conclusion of BERKELEY, yet he was aware that his reasonings led to it: and, indeed, his work may be said to contain a large portion of the arguments afterwards adopted by the acute and learned Bishop, in their full force. But to BERKELEY is due the honour of having first openly espoused this doctrine, so contradictory to all our feelings and senses; of defending it upon a more formal and extensive plan than any of his predecessors; and of giving new and ingenious views of the subject.[d]

About three years after the Bishop's first publication on this subject, ARTHUR COLLIER, an English clergyman, in his book, called *Clavis Universalis, or a New Inquiry after Truth*, endeavoured

c See *Principles of Human Knowledge*. Dublin, 1710.

d M. DUTENS, who is anxious to find among the ancients every invention and doctrine to which the moderns lay claim, quotes the following passage, in which something like the *Berkleian* doctrine is plainly alluded to. Γινεσθαι τοινυν, καθ' αυτον, των οντων χειρηστον ο ανθρωπος· παντα γαρ τα φαινομενα τοις ανθρωποις, και εστιν, τα δε μηδενι των ανθρωπων φαινομενα, ουδε εστιν. *Sext. Empiric. Pyrrhon. Hypotypos.* lib. i. sect. 219. See *Recherches sur l'Origine de Decouvertes*, &c. tom. i. 53.

to demonstrate the non-existence and impossibility of an external world. The arguments which he adduced in support of his cause are the same in substance with those used by Dr. BERKELEY, though the author says nothing of the work of that celebrated metaphysician, and does not appear to have seen it.

There was only one step more which was left for the most daring metaphysical revolutionists to take, viz. to deny the existence of a *spiritual* as well as of a *material* world. This step was at length ventured upon by Mr. HUME,[e] a sceptical metaphysician of Great-Britain, whose acuteness and ingenuity are well known. Adopting Mr. LOCKE's, and Bishop BERKELEY's opinion, that all the immediate objects of human knowledge are ideas in the mind, he traced the consequences of this principle to their utmost extent, and contended that there is neither matter nor mind in the universe! That what we call *body* is only an assemblage of sensations; and what we call *mind* only an assemblage of thoughts, passions, and emotions, without any subject. On the opposition in which the doctrines of the Irish Ecclesiastic and the Scottish historian stand to the common sense, and all the spontaneous and the deepest impressions of mankind, it is needless to remark. Their authors were sensible of this, and it is probable did not, in moments of sober reflection, believe their own speculations. Certain it is, they both acknow-

[e] The universal scepticism to which the sophistry of Mr. HUME leads, or rather which it directly embraces, cannot, with propriety, be considered here. Nor is it necessary. The extravagance and the mischievous tendency, especially of some of his opinions, seem, at present, to be acknowledged by all, excepting the desperate few, who are ready calmly to resign all principle, and all belief. The character of his philosophy, "falsely so called," has been exposed with great beauty of rhetoric, by Dr. BEATTIE, in his *Essay on Truth*; and, with great force of reasoning, by Dr. REID, in his *Inquiry into the Human Mind*, and his *Essays on the Intellectual and Active Powers of Man*.

ledged that the adoption of the principles which they maintained ought not to affect the practice of men, who must ever act as if they were known to be false: an argument, one would imagine, itself, of strong presumptive force, against all their plausible reasonings. But however the doctrines inculcated by these subtle disputants might have opposed their own feelings, or shocked the minds of others, it is certain they contributed much to promote that speculative philosophy, the tendency of which is to strike at the root of all knowledge, and all belief.

On observing the sceptical conclusions which BERKELEY and HUME had drawn from the old theory of perception, as it had been taught, in substance, by all writers, from PYTHAGORAS down to their time, some philosophers of Great-Britain were led, about the middle of the eighteenth century, to call this theory in question. If it were assumed as true that we perceive, not external objects themselves, but only the ideas in our minds, they saw no method of avoiding the consequences which had been so daringly admitted. They, therefore, denied the grand doctrine on which the whole superstructure they wished to oppose was built; and endeavoured to show, that, as the premises were gratuitously assumed and false, so the conclusions deduced from them were absurd and impossible. This controversy, doubtless, deserves to be considered among the most memorable of the age; and if the principles and reasonings of certain modern metaphysicians of North-Britain, to the publication of which this controversy has given rise, be regarded as just, they certainly form the most important accession which the philosophy of mind has received since the time of Mr. LOCKE.

At the head of these British philosophers stands Dr. REID, who first, in his *Inquiry into the Human*

Mind on the Principles of Common Sense, and afterwards in his *Essays on the Intellectual and Active Powers of Man*, gave a display, and attempted a refutation of the sceptical philosophy, which no one who suitably estimates the importance of the subject, can peruse without profound respect for the author and the deepest interest in his reasonings. He totally rejected the ideal system, or theory of perception, as taught by his predecessors, and maintained, that the mind perceives not merely the ideas or images of external objects, but the external objects themselves; that when these are presented to our senses, they produce certain impressions; that these impressions are followed by correspondent sensations; and these sensations by a perception of the existence and qualities of the objects about which the mind is employed. He contended that all the steps of this process are equally incomprehensible; that we can assign no other reason for these facts taking place, but that such is the constitution of our nature; and that when sensible objects are presented to us, we become persuaded that they exist, and that they possess the qualities which we witness, not by a train of reasoning, by formal reflection, or by association of ideas; but by a direct and necessary connection between the presence of such objects and our consequent perceptions. In short, the great and distinguishing peculiarity of this class of metaphysicians is, that they appeal from the delusive principles and shocking conclusions of their opponents, to the *Common Sense* of mankind, as a tribunal paramount to all the subtleties of philosophy. The same principle they apply to memory, and other powers of the mind.

It is obvious, from this view of Dr. REID's labours, that, although he has taken much pains to overturn the old ideal system, he has not ventured

to substitute any theory of his own in its place. Indeed it would have been inconsistent with his leading doctrine to have attempted this. His aim rather was, to give a simple and precise statement of facts, divested of all theoretical expressions; to show how long philosophers have imposed on themselves by principles gratuitously assumed, and by words without meaning; and to convince them, that "with respect to the process of nature in perception, they are no less ignorant than the vulgar." Nor let any slight this as a mere negative and unimportant discovery. If it be founded in truth, "few positive discoveries in the whole history of science can be mentioned, which have a juster claim to high reputation, than that which has detected, so clearly and unanswerably, the fallacy of an hypothesis, which has descended to us from the earliest ages of philosophy, and which, in modern times, has not only served to BERKELEY and HUME, as the basis of their sceptical systems, but was adopted as an indisputable truth by LOCKE, by CLARKE, and by NEWTON."[f]

It ought in justice to be stated, that Dr. REID, however great his merit for illustrating and defending the doctrine of *Common Sense*, as taught in his metaphysical writings, was by no means the first who resorted to this method of opposing the sceptical philosophy of the age. Father BUFFIER, a learned and ingenious Jesuit, of France, early in the century, espoused a doctrine substantially the

[f] *Elements of the Philosophy of Mind*, by DUGALD STEWART, F. R. S. E. &c. p. 94, 4to. 1792. In adopting, from Professor STEWART, this high praise of Dr. REID, and his writings on the human mind, I would by no means be understood to express unqualified approbation of his philosophy. To me his *Essays on the Active Powers of Man* have always appeared much inferior to those on the *Intellectual Powers*. Indeed, in the former there are several doctrines which I must consider as entirely erroneous. But of thus guarding and qualifying one's approbation there is no end. Speaking of Dr. REID's works in general, they are certainly among the most instructive and valuable metaphysical writings of the age.

same, and announced it in his "*First Truths*," as the only ground that could be taken in order to combat successfully DES CARTES, MALEBRANCHE, and LOCKE. It must be owned, indeed, that BUFFIER does not always speak of this faculty or power in man in precisely the same terms with Dr. REID and his followers, nor can their different accounts of the subject be in every case fully reconciled; yet there is doubtless such a similarity between the ideas of the learned Jesuit and those of the celebrated British Divine, that the merit of *originality* can hardly be yielded to the latter. To Dr. REID, however, and some contemporary philosophers, the honour undoubtedly belongs, of having more fully explained the grand principle upon which their system turns; of having extended its application; and of having deduced its consequences in a more explicit and systematic manner.[g]

Since the publication of Dr. REID's philosophy, it has been espoused and defended by several dis-

g See *First Truths*, &c. translated from the French of Pere BUFFIER by an anonymous hand, 8vo. London, 1780. The translator of this work, in a long prefatory discourse, endeavours to fasten the charges of *Plagiarism*, *Concealment*, and *Ingratitude* on Drs. REID, BEATTIE, and OSWALD, with a degree of zeal, acrimony, and contemptuous sneer, by no means honourable to himself. He represents them as indebted to BUFFIER for the substance of all they have written. Whoever this violent assailant is, he certainly does them injustice. To exculpate those gentlemen wholly from the charge of *Plagiarism* would not, perhaps, be easy; but to push the charge so far as he does, and especially to treat their general character and merits as he permits himself to do, cannot fail to disgust every candid reader. After all that he has advanced concerning Pere BUFFIER, the impartial inquirer will find such a degree of originality in the works of the celebrated Scottish metaphysicians, especially those of Dr. REID, as ought to secure to them a high and lasting reputation.

The late Dr. WITHERSPOON, President of the College of New-Jersey, whose vigour and originality of mind are generally known, once informed a friend, that the first publication in Great-Britain in which REID's leading doctrine was suggested, and in a degree developed, was an *Essay* written by himself, and published in a Scottish magazine, some years before Dr. REID wrote on the subject. Those who are acquainted with the talents of the illustrious President, and who know how remote his disposition was from that vanity and arrogance which prompt men to make false pretensions, will probably, without hesitation, accredit his claim.

tinguished metaphysicians, especially in Great-Britain. Among the most able of these is Dr. DUGALD STEWART, Professor of Moral Philosophy in the University of Glasgow. It was before remarked, that Dr. REID, after demolishing the doctrines of his predecessors, and laying the foundation of a new system, forbore to undertake the erection of an improved superstructure on this basis. Professor STEWART, though far from having, in his own estimation, completed such a superstructure, is yet considered as having done something towards it, and as having rendered substantial service to the philosophy of mind. He has carried some of his doctrines to a greater length than they were carried by his great predecessor, and in some important particulars he dissents from that able pneumatologist.[h]

The principles of Dr. REID have also been adopted, and perspicuously displayed by Dr. BEATTIE, in his *Essay on Truth*, and other publications; by Dr. OSWALD, in his *Appeal to Common Sense in Behalf of Religion;* by Lord KAIMS, in his *Sketches of the History of Man;* by Dr. A. FERGUSON, in his *Principles of Moral and Political Science;* and by some other respectable writers.

A system of pneumatology, partly belonging to the eighteenth century, from the noise which it made, and the speculations which it excited during that period, is that of the celebrated LEIBNITZ, a philosopher of Germany,[i] who was mentioned

b It is not easy, in this place, to point out the particulars in which Dr. STEWART differs from Dr. REID. The reader will receive satisfactory information on this subject by looking into those chapters in STEWART's *Elements of the Philosophy of the Mind*, which treat of *Conception*, *Abstraction*, and *Association*.

i In chronological strictness, the system of LEIBNITZ ought to have been noticed before those of BERKELEY, HUME, and REID; but as the latter stood in close connection with the doctrines of MALEBRANCHE, and as it did not appear expedient to interrupt the course of narration respecting them, it has been judged proper to introduce a brief account of the doc-

in a former chapter. This system appears to have been formed by its author, with a view, on the one hand, to amend the theory of DES CARTES, and on the other to oppose the doctrines of NEWTON. LEIBNITZ conceived the whole universe, minds as well as bodies, to be made up of *monads*, that is, simple substances, each of which is, by the Creator, in the beginning of its existence, endowed with certain active and perceptive powers. A monad, therefore, is an active substance, simple, without parts or figure, which has within itself the power to produce all the changes it undergoes, from the beginning of its existence to eternity. The changes, according to him, which the monad undergoes, of whatever kind, though they may seem to us the effects of causes operating from without, yet are only the gradual and successive evolutions of its own internal powers, which would have produced all the same changes and motions, although there had been no other being in the universe. He taught that every human soul is a monad, joined to an organized body, which organized body consists of an infinite number of monads, each having some degree of active and perceptive power in itself; but that the whole machine of the body has a relation to that monad which we call the soul, which is, as it were, the center of the whole. He further supposed that there are different orders of monads, some higher, and others lower. To the higher orders he gave the name of *dominant*, and to this class belongs the human soul. Those which make up the organized bodies of men, animals, plants, &c. he

trines of the illustrious German in this place. LEIBNITZ died in the year 1716. He was considered one of the greatest men of the period in which he lived. In vigour and comprehensiveness of mind he was eminently distinguished; in the variety and versatility of his talents he had few equals; and in the extent of his acquirements he was almost unrivalled.

contended were of a lower order, and subservient to the dominant monads. But every monad, of whatever order, he represented as a complete substance in itself, having no parts, and indestructible by any power less than Divine, which there is no reason to believe will ever be exerted in the annihilation of any being which it has created. Finally, he maintained that monads of a lower order may, by a regular evolution of their powers, rise to an higher order; that they may be successively joined to organized bodies, of various forms, and different degrees of perception; but that they can never die, nor cease to be, in some degree, active and percipient.

This philosopher distinguished between *perception* and *apperception*. The former he supposed common to all monads. The latter, implying consciousness, reflection, and a capacity to comprehend abstract truths, he believed to be peculiar to the higher orders, such as the soul of man. He conceived that our bodies and minds are united in such a manner that neither has any physical influence on the other, each performing all its operations by its own internal powers; yet the operations of one corresponding exactly with those of the other, by a pre-established harmony. According to this system, all our perceptions of external objects would be the same, though those objects had never existed, or though they should, by Divine power, be annihilated. We do not perceive external things because they exist, but because the soul was originally so constituted as to produce in itself all its successive changes and perceptions independently of external objects. Every operation of the soul is the necessary consequence of that state of it which preceded the operation; and that state the necessary consequence of the state immediately preceding it, and so backwards,

till we come to its first constitution, which produces successively, and by necessary consequence, every successive state throughout the whole course of its existence.[j]

This system, for many years after its publication, excited uncommon attention, and obtained great currency, especially in the native country of the author. It was early espoused by CAROLUS WOLFIUS, a celebrated philosopher also of Germany, a most voluminous commentator on the writings of his master, and a zealous defender of his doctrines. On the foundation of these doctrines he formed a new system of cosmology and pneumatology, digested and demonstrated in a mathematical method. The principles of LEIBNITZ had also some advocates, either in whole or in part, in other parts of the continent of Europe; and in Great-Britain, for a considerable time. But, at the close of the eighteenth century, their reputation had much diminished, and they were adopted by comparatively few, in any part of the philosophical world.

Among the great theorists in pneumatology which belong to this period, Dr. HARTLEY, a celebrated English physician, also holds a conspicuous place.[k] The two grand principles on which his whole system rests, are those of *Vibration* and *Association*. NEWTON had taught that the rays of

j REID'S *Intellectual Powers of Man*, Essay ii.

k Dr. DAVID HARTLEY was born in Yorkshire, August 30, 1705, and died at Bath, August 28, 1757. His great work, the *Observations on Man*, was published in 1749. He was educated with a view to the clerical profession, in the Church of England; but feeling some scruples about subscribing to the thirty-nine articles, he relinquished that design, and devoted himself to the study and practice of medicine, in which he was eminent. While he departed from the public standards of his church in several important particulars, he was much distinguished for the force of his mind, the extent of his learning, the amiableness and benevolence of his disposition, and the purity of his moral character. He was a firm believer in Revelation, and wrote, though not with orthodoxy, yet with great seriousness and ability in its defence.

light, falling upon the bottom of the eye, excite *vibrations* in the *retina*, and that these vibrations being propagated along the optic nerves into the brain, produce the sensation of seeing. Dr. HARTLEY adopted this hypothesis, and applied it, with ingenious additions and modifications of his own, to the other senses. Mr. LOCKE had thrown new light on the doctrine of *association*, and shown its great influence and importance in the operations of the human mind. Dr. HARTLEY also adopted the leading ideas of this great metaphysician on this subject, and by uniting them with the Newtonian opinions, formed a system on which the praise of great ingenuity and plausibility has been bestowed.

He taught, that the white medullary substance of the brain, spinal marrow, and the nerves proceeding from them, form the immediate instrument of sensation and motion; that whatever changes are produced in this substance, corresponding changes take place in our ideas; that external objects impressed upon the nerves occasion, first in the nerves on which they are impressed, and then in the brain, *vibrations* of the small and infinitesimal medullary particles, which vibration excites a sensation in the percipient principle, which remains as long as the vibration lasts, that is, as long as the object continues to affect the organs of sense. That the medullary substance having once vibrated in a particular manner, does not return entirely to its natural state, but continues disposed to vibrate in that manner rather than any other, which tendency of the brain to the renewal of the vibration is the cause of the retention of the idea in the absence of the archetype. That whatever renews the vibration, renews also the perception; but the renewed vibration being less vigorous than the original one, is called a *miniature vibration*, or *vi-*

bratiuncle, and the renewed perception corresponding with it is called an *idea*. That vibrations may be revived not only by the repetition of external impressions, but by their *association* with each other; and that, of vibrations which have been associated together a sufficient number of times, either synchronously, or in succession, if one be excited, it will excite the miniatures of all the rest. This is supposed to furnish a solution to all the phenomena of the association of ideas.

According to this theory, the nerves are divided into two classes, *sensory* and *motory;* the former being the immediate instruments of sensation, the latter of motion. Both originate in the medullary substance of the brain, and their vibrations influence and modify each other. In short, every sensation, idea, muscular motion, affection, and internal feeling whatever, is supposed, by Dr. HARTLEY, to correspond with some vibratory state of the medullary substance, so that the one may be regarded as the exponent of the other.[l]

Though this system contains many ideas, which bear a near relation to the theories of DES CARTES, MALEBRANCHE, and LEIBNITZ;[m] and though its two fundamental principles are derived from the works of NEWTON and LOCKE, yet the author has a considerable claim to the character of originality. His doctrines, combined as they are, and formed into a fair structure, belong to himself, and certainly present some new and useful truth. It seems to be the opinion of many that he ought to be classed with the *materialists* of the age, and it is not easy to assign him any other place. This, indeed, is contrary to his own express declarations. He was apprehensive lest the doctrine of corporeal

[l] *Observations on Man*, vol. i. See also BELSHAM's *Elements of the Philosophy of Mind*, &c. 8vo. 1801.

[m] *Observations on Man*, vol. i. p. 110 and 111. Edit. Lond. 1791.

vibrations, which forms so prominent a feature of his work, should be deemed favourable to materialism. "He was therefore anxious to declare, and to have it understood, that he was no materialist."[n] Notwithstanding this declaration, however, it is difficult to reconcile his doctrines with the immateriality of the soul. Good judges have pronounced that if these doctrines be pursued to their natural consequences, they must terminate in absolute Spinozism. Accordingly it is well known, that some of the most distinguished materialists of the age not only profess to admire Dr. HARTLEY's work, but also adopt his reasonings, and acknowledge him as their great master.

Another metaphysical system, which deserves to be mentioned among the curiosities of the age, is that adopted and published by Lord MONBODDO, a celebrated and voluminous writer of North-Britain. This system is, in fact, little more than a revival of what his Lordship considers the Aristotelian philosophy, or the doctrine of *Universals*, with the addition of some crude and absurd visions of his own, which have been little studied, and still less respected by those who are competent to judge.

[n] The following passage is extracted from the *Life of* Dr. HARTLEY, published with the last edition of his work.

"There was but one point in which he appeared anxious to prevent any misapprehension of his principles: that point respected the immateriality of the soul. He was apprehensive lest the doctrine of corporeal vibrations, being instrumental to sensation, should be deemed unfavourable to the opinion of the immateriality of the soul. He was therefore anxious to declare, and to have it understood, that he was not a materialist. He has not presumed to declare any sentiment respecting the nature of the soul, but the negative one, that it cannot be material according to any idea or definition that we can form of matter. He has given the following definition of matter, viz. 'That it is a mere passive thing, of whose very essence it is to be endued with a *vis inertiæ*; for this *vis inertiæ* presents itself immediately in all our observations and experiments upon it, and is inseparable from it, even in idea.' The materiality therefore of the sensitive soul is precluded, by the definition of matter being incapable of sensation. If there be any other element capable of sensation, the soul may consist of that element; but that is a new supposition, still leaving the original question concluded in the negative, by the fundamental definition of matter."

Lord MONBODDO analyzes sensible objects into *matter* and *form*, and teaches, like most of the disciples of the Stagirite, the eternity of both. He insists that there are in man *four* distinct minds, viz. the *elemental*, the *vegetable*, the *animal*, and the *intellectual*; that of these, the *intellectual* only is immortal; that the soul is not created for any particular body, but transmigrates from one to another; that there are different grades of minds; those which occupy earths and stones, and those which reside in plants and the inferior animals up to man; that gravitation is nothing more than the activity of a soul residing in, and animating masses of earth; and that it is more honourable to the Deity to consider him as operating in all the departments of nature, by the instrumentality of inferior minds, than to represent him as acting on matter immediately. Whether the souls of men transmigrate to the bodies of brutes he is doubtful; but that the souls of vegetables and inferior animals each transmigrate from one to another of their own species, and perhaps from a lower to a higher, and *vice versa*, he thinks there is abundant reason to believe.

So far as Lord MONBODDO agrees with the Aristotelian philosophy, he talks with a semblance of reason, and may be read with patience. But the extraordinary consequences which he draws from this ancient system of pneumatology, the capricious use which he makes of it, and his visionary and fantastic additions to it, render his work as singular a mass of good sense and absurdity, erudition and ridiculous credulity, as any age ever produced.[o] Mr.

[o] See *Ancient Metaphysics*, 5 vols. 4to. From the singular opinions which abound in this learned and extensive work, the following selection is offered to the reader as a specimen. That the *Ourang Outang* is a man not civilized; that men originally wore *tails*, and went upon *all fours*; but that the one dropt off, and they rose from the other to an erect posture by the progress of civilization; that the natural state of man is to live without

JAMES HARRIS, in his *Hermes*, and in his *Philosophical Arrangements*, strove, with equal zeal, nearly about the same time, to revive the philosophy of ARISTOTLE, but without so strangely distorting its features, or encumbering it with such heterogeneous and whimsical additions.

Among the new metaphysical theorists of the age, it would be improper to pass in silence the celebrated IMMANUEL KANT, Professor at Koenigsberg, in Prussia. This gentleman, about the year 1781, first published a system of metaphysics and moral philosophy, which has been ever since gaining ground among the literati of Germany, and is now much in vogue in that country. Professor KANT, we are told, was led to the train of thinking, which ripened in his mind into the system which bears his name, by the perusal of HUME's essay on the idea of necessary connection; and of PRIESTLEY's reply to REID, BEATTIE, and OSWALD.[p] But from whatever source his ideas are derived, he has formed them into a fabric, which is extolled by his adherents as one of the most sublime efforts of human genius, and as ranking among the most important improvements ever made in science. If we may believe the extravagant panegyrics of these enthusiastic disciples, he has more successfully explored the darkest recesses of the human mind than any individual amongst all his illustrious predecessors, and his writings contain a developement of precisely those truths after which mankind have been seeking for centuries in vain.

habitation, cloathing, fire, or language; that his best and only proper food is raw vegetables; that there have been giants of two and three, and in some instances of eight and nine times the height of ordinary men in these degenerate days; that there are now hordes of men with *tails*, and whole nations who have but one leg; that in Ethiopia there are men who have their eyes in their breasts, and others who have only one eye, and that in their forehead!!! &c. &c.

[p] *Elements of the Critical Philosophy*, &c. by J. C. ADELUNG; translated, with additions, by A. F. M. WILLICH, M. D. Lond. 8vo. 1798.

"Still, however, when inquiry is made, among the followers of this singular man, respecting the general drift of his system, they answer chiefly in negations. It is *not* atheism; for he affirms that practical reason is entitled to infer the existence of a Supreme Intelligence. It is *not* theism; for he denies that theoretical reason can demonstrate the existence of an infinite intelligent Being. It is *not* materialism; for he maintains that time and space are only forms of our perception, and not the attributes of extrinsic existences. It is *not* idealism; for he maintains that noumena are independent of phenomena; that things perceptible are prior to perception. It is *not* libertinism; for he allows the will to be determined by regular laws. It is *not* fatalism; for he defines this to be a system in which the connection of purposes in the world is considered as accidental. It is *not* dogmatism; for he favours every possible doubt. It is *not* scepticism; for he affects to demonstrate what he teaches. Such are the indefinite evasions of this school."[q] The disciples of this celebrated professor assure us that their system is so profound and extensive, that the acutest understanding cannot tolerably comprehend it by less than a twelvemonth's study; and that to become a thorough master of its subtle and recondite principles, requires the unwearied labour of many years. After such a declaration, it would be presumptuous for one but slightly acquainted with the subject to attempt an exhibition even of the outlines of this plan. But not to omit all notice of so celebrated a system, it may be proper to state the following doctrines, as among the elementary principles which it contains.

q *Monthly Review* of London, vol. xxviii. N. S. p. 62. 1799.

Professor KANT teaches that all men have a certain innate faculty, consisting in the capacity of the soul to receive immediate representations of objects; that the representations which this sensitive faculty affords us are perceptions; that all our perceptions have a two-fold form, *space* and *time;* that this faculty ought to be called *theoretical reason*, or *speculative understanding;* and that it is of so limited a nature that it cannot perceive any thing beyond the two forms already mentioned, one of which belongs to the perception of our internal, and the other to that of our external senses. He maintains, that the objects which we perceive in space exist not externally, but only internally; they are mere phenomena, but cannot be said to be only ideal, nor to have no objective reality; because they depend on established laws, and real principles. When, therefore, they are said to exist, no more is meant than that they are perceived in space, or in the form of external organization. He believes, that as the nature and form of our perceptions are determined by the nature of our sensible faculty, so the form of our thoughts, or the manner in which we judge concerning phenomena, or arrange our perceptions, is determined by the nature of our theoretical reason; and as that which, when knowledge is obtained by means of the senses, gives a form to the matter perceived, is called a *pure perception;* so that by which we determine the connection of our observations, and form a judgment concerning them, is called a *pure notion*, or *category*. Those pure notions which are discoverable by an analysis of the judgment, may be reduced to notions of quantity, quality, relation and modification. These categories, considered abstractedly, are not deduced from our perceptions and experience, but exist in the mind prior to these latter, and experience is the result of

their combination with our perceptions; but it is only in connection with our perceptions that these pure notions can be the source of knowledge; for, in themselves, they are mere forms, without any independent existence. They serve to direct us in the use of our observations; but they cannot extend our knowledge beyond the limits of perception and experience."

"There are, according to Professor KANT, two kinds of propositions, concerning which our minds may be employed, analytical and synthetical. The former are those in which we only explain or illustrate that of which we have already some idea; whereas, in the latter, we increase our knowledge, by adding something new to our former idea of the subject. Thus, when we say *all matter is extended*, we form an *analytical* proposition; and when we say, *all bodies have a certain weight*, that is a *synthetical* proposition.

"Without experience, we cannot form any synthetical proposition concerning the objects or matter of our knowledge; but, as the forms of our knowledge are independent of and prior to our experience, we may, with respect to the pure notions already mentioned, conceive synthetical propositions, or acquire pure science; and indeed it is only when we have pure perceptions and pure notions for our objects, that we can arrive at universal and necessary certainty; as is the case in pure mathematics and philosophy, in which we consider truth, abstracted from matter, with respect only to the forms or laws of knowledge and volition.

"Beside theoretical reason, M. KANT ascribes to man another faculty, which he calls practical reason, endued with power sufficient to impel and direct the will. He asserts that, if this faculty were not granted, it would follow that practical laws would not be universal moral precepts, but

only particular maxims, which individuals might prescribe to themselves as the rule of their conduct. To these universal moral laws, practical reason commands our implicit obedience, without any regard to our inclinations or views of advantage. These are indeed sometimes at variance with the dictates of duty, but, in order to diminish their influence as obstacles to virtue, our practical reason must determine us firmly to believe the existence of the Deity, and of a future state in which our happiness will be proportioned to our internal worth. This is what our philosopher calls *rational faith*, as it is independent of all knowledge of its object; for the principles of religion can be neither demonstrated nor disproved by theoretical reason, but are mere postulates of practical reason; and the only theology that is really founded on our understanding, is moral theology, which depends on moral principles."[r]

The complaint that all this is obscure and scarcely intelligible, will probably be made by every reader. An English philosopher tells us, that it would require more than ordinary industry and ingenuity to make a just translation, or a satisfactory abstract of the system in question, in our language; that for this purpose a new nomenclature, more difficult than that of the Linnæan Botany, must be invented. This circumstance itself affords strong presumption against the rationality and truth of the Kantian philosophy. Locke and Newton found little difficulty in making themselves understood. Every man of plain good sense, who is used to inquiries of that nature, readily comprehends their systems, in as little time as it requires to peruse their volumes. Even Berkeley and

r The above brief account of the *Kantian* system of *Pneumatology* is extracted from a *British Literary Journal.*

HUME, with all their delusive subtleties, found means to render themselves easily intelligible. Is there not reason, then, to suspect, either that the system of Professor KANT is made up of heterogeneous, inconsistent and incomprehensible materials; or that, in order to disguise the old and well known philosophy of certain English and French writers, and to impose it on the world as a new system, he has done little more than present it under a new technical vocabulary of his own? Or, which is, perhaps, not the most improbable supposition, that, being sensible of the tendency of his philosophy to undermine all religion and morals, as hitherto taught and prized in the world, he has studied to envelope in an enigmatic language, a system which he wishes to be understood by the initiated alone; a system which has been pronounced "an attempt to teach the sceptical philosophy of HUME in the disgusting dialect of scholasticism?" At any rate, notwithstanding all the unwearied pains which some of the disciples of this famous Prussian have taken, to rescue him from the imputation of being one of the sceptical philosophers of the age, the most impartial judges will probably assign him a place among those metaphysical empirics of modern times, whose theoretical jargon, instead of being calculated to advance science, or to forward human improvement, has rather a tendency to delude, to bewilder, and to shed a baneful influence on the true interests of man.

The system of KANT has found numerous friends and commentators, particularly in Germany, who contend, that it sets limits, on the one hand, to the scepticism of HUME; while, on the other, it refutes and overturns materialism, fatalism, and atheism, as well as fanaticism and infidelity. Among those who have distinguished themselves as the friends and advocates of this system, REINHOLD,

Schulze, Schmid, Jacob, Will, Reimarus, and Adelung, hold a distinguished place. On the contrary, among its opponents, we find the names of Herder, Plattner, Selle, and many others. The controversy to which the *Critical Philosophy* has given rise, as it has produced a multitude of voluminous publications, so it will long be ranked among the most curious and interesting of the age.

In the latter half of the century under consideration, a new doctrine concerning the human mind was announced, which is entitled to some notice in this place. This doctrine, it is believed, was first adopted and advanced by M. Helvetius, a celebrated French writer.[s] He was followed by M. Condorcet,[t] and some others, also of France; by means of whose writings it obtained considerable currency among the literati of that country, and was afterwards embraced and defended, with much plausibility, by Mr. Godwin,[v] and others, of Great-Britain.[w]

The advocates of this doctrine maintain the *Perfectibility of Man.* With regard to the nature of the human mind they appear, in general, to embrace the system of *materialism.*[w] They suppose that the thinking principle of man is the result of corporeal organization; that the difference in minds results from the difference of this organization, and more especially from the subsequent circumstances

s *A Treatise on Man, his Intellectual Faculties, and his Education.* Translated by Hooper, 2 vols. 8vo. 1777.

t *Outlines of an Historical View of the Progress of the Human Mind.* 8vo. 1795.

v *Inquiry concerning Political Justice,* second Edit. 2 vols. 8vo. 1796.

w It is not meant to be asserted that all these writers agree with respect to the details of their several systems; but that they concur in asserting the *omnipotence of education,* and the *perfectibility of man.*

w Some of those who profess a belief in the *perfectibility* of man appear to be in doubt with respect both to the *immateriality* and *immortality* of the soul. They are so busied about the improvement of man in this world, that they have little time, and less inclination to bestow a thought on his destiny and prospects in that which is to come.

and education of the individual; that by means of the diffusion of knowledge, and the adoption of better principles and modes of education, the improvement of man in intellect, in virtue, and in happiness, will go on to an illimitable extent; that, at length, mind shall become "omnipotent over matter," perfect enjoyment assume the place of present suffering, and human life, instead of being bounded by a few years, be protracted to immortality, or at least to an indefinite duration.

This system is unsupported by any facts; it is contrary to all the experience of mankind;* it is opposed to every principle of human nature, and it is scarcely necessary to add, to the plainest dictates of Revelation. That man may, and probably will, make great improvements hereafter, in science and art, is readily admitted. That we cannot presume to assign the bounds of this improvement, is also admitted. But that there will be absolutely no bounds to it, or, which is the same thing as to the argument, that it will go on beyond all assignable or conceivable limits, is to suppose the constitution of man essentially changed, his present wants, habits, and mode of subsistence totally superseded, and a nature conferred upon him wholly different from that which his Creator gave him. But as the doctrines held by the advocates of human *perfectibility* become still more important when considered with respect to their moral and political application, the further consideration of their extravagance, weakness, and inconsistency, and the injurious consequences arising

* It is somewhat curious that many of those who adopt the opinion concerning man which is here opposed, believe, at the same time, that this world has existed from eternity. If, amidst eternal revolutions, and eternal progress, mankind have not yet risen above the grade at which we now behold them, there seems little encouragement to hope for any thing like what they anticipate in future.

from their adoption, will be attended to in a subsequent part of this sketch.[7]

During the last age, several detached parts of the philosophy of mind have been illustrated in a manner greatly superior to the attempts at explanation made in former periods. Perhaps there is no subject to which this remark more forcibly applies than to the great question of *Liberty* and *Necessity*, which, through so many successive ages, has served to puzzle the acutest metaphysicians. Never, probably, was any point more largely, ably, and profoundly discussed. The writings of LEIBNITZ, COLLINS, HUME, HARTLEY, PRIESTLEY, and BELSHAM, on the side of moral *necessity;* and of CLARKE, BUTLER, REID, BEATTIE, DE LUC, GREGORY, and HORSLEY, in favour of *liberty*, are well known, and form very important materials in the metaphysical history of the age. But the greatest work which the century produced on this subject, and certainly among the ablest ever written on any department of philosophy, is that by the celebrated American Divine, Mr. JONATHAN EDWARDS, for some time President of the College of New-Jersey. This gentleman wrote on the side of moral *necessity*, or against the self-determining power of the will; and investigated the subject with a degree of originality, acuteness, depth, precision, and force of argument, which the accurate reader cannot contemplate but with astonishment. It will not be said that he has brought to an issue a controversy, which will probably last as long as men exist on earth; but that he has thrown much new light on the subject will be questioned by none; and that he has approached as near to a *de-*

7 Some further remarks on this delusive system will also be found under the head of *Education*, in the present volume. But in the *third* division of the work, in which it is proposed to take a view of the *moral* principles and establishments of the eighteenth century, a more particular consideration of it will be attempted.

monstration, that the doctrine of moral *necessity* (as explained and guarded by him) is the only scriptural and philosophical doctrine on this subject, as the nature of such inquiries admits, is certainly the opinion of some of the best judges in every part of the literary world.[z] The extremes to which the system of the venerable President has been carried by several subsequent writers, and the consequences deduced from it, were far from being recognized by him; and with respect to some of them, they are, beyond all doubt, illegitimately drawn.

It is worthy of remark, that our great countryman, Mr. EDWARDS, appears to have been the first *Calvinist* who avowed his belief so fully and thoroughly in the doctrine of moral necessity as his book indicates. Though all Calvinistic writers before his time were characterized by a firm adherence to the doctrine of *Predestination;* yet they seem, for the most part, to have adopted a kind of middle course between his creed and that of the Arminian *contingency.* The penetrating and comprehensive mind of EDWARDS went further; demonstrated that this middle ground was untenable, and presented a more clear and satisfactory view of the doctrines of free grace, when contemplated through the medium of his main doctrine, than had ever before been given.[a]

That class of philosophers who taught that the soul was *material,* were, until the eighteenth century, generally ranked among infidels, and in most

[z] Soon after the publication of President EDWARDS's celebrated work on the *Will,* he received the thanks of several Professors of the Universities of Holland, and of other gentlemen of distinction, in various parts of Europe, for having, in their opinion, thrown more light on the subject than all preceding writers. This publication has long been considered and quoted as a standard work on the side of this question which it is designed to defend.

[a] See his *Inquiry into the Freedom of the Will,* &c. passim.

instances, really deserved this character. Hence a *materialist* has been commonly considered as a denomination tantamount to a charge of atheism itself, or at least of criminal indifference to religion. The Christian world, accustomed to connect this tenet with such heresies as those of SPINOZA, HOBBES, COLLINS, and others, of a similar character, naturally concluded, that a belief in immaterialism necessarily flowed from a belief in Christianity. The last age is distinguished by the adoption of this anti-christian error, by some who profess to embrace the Christian faith. Among these the most conspicuous and active is Dr. PRIESTLEY,[b] who maintains that "man does not consist of two substances essentially different from each other; but that the conscious and thinking principle, or what we generally term the soul, is merely a property resulting from a peculiar organical structure of the brain." On this principle he attempts to show that the idea of the natural immortality of the soul is wholly fallacious; that the properties of sensation and thought, and of course all the distinguishing characteristics of the thinking part of our nature, must be extinguished by the dissolution of the organized mass in which they exist; and therefore that the only reason which men have to expect a state of consciousness or enjoyment hereafter, is derived from the scripture doctrine of the resurrection. In former parts of this work the services of Dr. PRIESTLEY in the physical sciences have been mentioned with high respect, and with frequently repeated tributes of applause. It is to be regretted that so much of what he has written on the philosophy of mind, and almost the whole of his writings on the subject of theology, should be so radically erroneous, and so subversive

[b] *Disquisitions concerning Matter and Spirit*, and *Correspondence between* PRICE and PRIESTLEY.

of all the interests of evangelical truth and practical piety.

The controversy respecting the immateriality of the soul between Dr. CLARKE and Mr. COLLINS, and many years afterwards between Dr. PRICE and Dr. PRIESTLEY, forms a very important part of the metaphysical history of the period in which they lived; and probably furnishes some of the most luminous views of this interesting controversy that were ever presented to the world. Some of the immaterialists of this age, such as Dr. CLARKE, Dr. PRICE, and others, maintained, that the mind has one property, viz. *extension*, in common with matter, and, consequently, that it occupies space, and has a proper locality, or, as the schoolmen express it, *ubiety;* while others, such as Dr. WATTS, perhaps more consistently and philosophically supposed, that mind has no common property with matter; that it is inextended, does not occupy space, and has no proper locality.[c]

The celebrated dispute between the *Nominalists* and *Realists*, which perplexed the schoolmen for so many ages,[d] and which all their acuteness was not able to terminate, was carried on with great warmth, under different names, and with some

[c] See *Correspondence between* PRICE and PRIESTLEY; and also *Elements of the Philosophy of Mind*, by T. BELSHAM.

[d] The *Realists* followed the doctrine of ARISTOTLE with respect to *universal ideas*. They taught that previous to, and independent on matter, there were no universal *ideas* or *essences;* but that the ideas or exemplars, which the Platonists supposed to have existed in the Divine mind, and to have been the models of all created beings, had been eternally impressed upon matter, and were coeval with, and inherent in, their objects. On the other hand, the *Nominalists*, who embraced the doctrine of ZENO and the Stoics, insisted, in opposition both to the Aristotelians and Platonists, that these pretended *universals* had neither *form* nor *essence*, and were no more than mere *terms*, or *nominal* representations of their particular objects. The doctrine of ARISTOTLE chiefly prevailed until the eleventh century, when ROSCELINUS embraced the Stoical system, and founded the sect of the *Nominalists*, whose opinions were propagated with great success by ABELARD. These two sects frequently disputed and divided into inferior parties among themselves.

new modifications, through the whole of the last century. And though still far from being concluded, yet probably there was never so much light thrown on the question in any preceding period. Of those who maintained the doctrine of the *Realists*, it is believed that Mr. HARRIS, Dr. PRICE, and Lord MONBODDO were among the most eminent; while the system of the *Nominalists* was espoused and defended, with great ingenuity, by Bishop BERKELEY, Mr. HUME, Dr. CAMPBELL, Professor STEWART, and many others. Mr. LOCKE, Dr. REID, and a few more under the name of *Conceptualists*, adopted a kind of middle course between these far-famed disputants.

Besides the writers on the general philosophy of mind, or on particular parts of this science, whose names have been mentioned in the foregoing pages, a number of others are entitled to notice in the metaphysical history of the last age, as having either written professedly on the subject, or interwoven much matter relating to the philosophy of mind in the discussion of theological, moral, and literary subjects. Among these Bishop BUTLER, Dr. HUTCHESON, Mr. GROVE, Dr. CAMPBELL, Dr. A. SMITH, Mr. TUCKER,[s] and Mr. ALLISON, of Great-Britain; BEAUSOBRE, CONDILLAC, and many more, of France; LOSSIUS, TETENS, FEDER, KRUGER, and MENDLESSHOM, of Germany; CROUZAZ, LE CLERC, BONNET, and several others, of Geneva; and a much longer list which might

s See *The Light of Nature Pursued*, by EDWARD SEARCH, Esq. 7 vols. 8vo. 1768, 1778. The real author of this work was ABRAHAM TUCKER, Esquire. It contains much new, curious and highly interesting dicussion on metaphysical and moral subjects. Of Mr. TUCKER, Dr. PALEY, in the preface to his *Moral and Political Philosophy*, speaks in the following terms: "I have found in this writer more original thinking and observation upon the several subjects that he has taken in hand, than in any other, not to say, than in all others put together. His talent for illustration is unrivalled. But his thoughts are diffused through a long, various, and irregular work."

be selected from different parts of Europe, are entitled to respectful distinction.[f] Indeed, the connection is so close between the philosophy of mind and moral science, that every systematic writer on the latter subject has, in a greater or less degree, treated of the former. This will more fully appear, when we come, in a future division of the present work, to take a view of the various moral systems which have obtained currency, or excited attention in the last age.

CHAPTER XIII.

CLASSIC LITERATURE.

AT the revival of learning in the fifteenth century, *Classic Literature*, or the study of the best ancient writers of Greece and Rome, was an object of primary and enthusiastic attention among the literati of Europe. The remains of those writers were sought with avidity, and studied with persevering diligence. Criticisms and commentaries upon them abounded. To gain possession of a classic manuscript; to remove an obscurity in an ancient text; or to propose a new reading, was then considered among the most honourable and useful of all literary atchievements. At that time he who could lay claim to the character of an adept in the Greek and Latin tongues was, of course, a great and learned man; while,

[f] With the writings of the greater part of the metaphysicians above mentioned, which belong to the continent of Europe, especially those of Germany, the author knows little but by report; it will not, therefore, be expected that he should deliver any formal statements or opinions concerning their doctrines.

without this, however solid, extensive and valuable his knowledge of other subjects, no one could be rescued from the charge of barbarous and contemptible ignorance. In a word, instead of considering classic literature as a *means* of obtaining more important knowledge, the directors of public taste, at that period, unwisely erected it into an ultimate *end*, and taught their followers to consider it as the most worthy object of pursuit, to all who were ambitious of becoming learned. This was an improper extreme. The more judicious had just cause to lament that such a disproportionate share of regard was bestowed on language, to the neglect of studies more important and immediately practical. . .

This error began to be corrected about the beginning of the seventeenth century. At this period, brilliant discoveries in natural philosophy began to arrest the attention of the learned world, and the physical sciences in general became more objects of regard. But this decline of classic literature was gradual. One error was not immediately exchanged for its opposite. The Latin language was now generally employed as a medium of publication in science; and although it had come to be generally considered in its proper light, as a *means* rather than an *end;* yet both this and the Greek were generally and deeply studied by all who had a taste for letters, or aspired to distinction in knowledge.

At the beginning of the eighteenth century the study of the ancient languages was still esteemed an essential part of liberal education. It was then the habit of the learned not only to write and speak the Latin tongue with the greatest facility; but they also still employed it as a medium for conveying the result of their philosophical labours throughout the literary world; and most of those

who laid claim to the character of scholars, had an extensive and accurate acquaintance with Grecian literature. In both these respects the eighteenth century produced a singular revolution. The Latin language has in a great measure ceased to be that familiar medium of conversation and of writing, among the learned, that it once was; and the Greek, *though* nominally retained, as a branch of study in modern seminaries of learning, has become almost unknown even to the liberally educated. A belief is daily becoming more prevalent and popular that the time bestowed on the acquisition of these languages, if not entirely wasted, might at least be more usefully employed. This belief, of course, has had considerable influence on modern plans of education. And although in a few of the ancient European seats of learning, some portion of the former zeal for classic literature still remains; yet even in these a considerable decline from their wonted eminence is plainly visible; and in by far the larger number the decline is great, humiliating, and evidently on the increase.

The vernacular tongue, it is believed, first began *to be employed* in works of science, to the rejection of the Latin, in Italy. From that country the practice made its way into France, and soon became general. Great-Britain was the next, in order, to adopt this innovation, which was admitted last of all into Germany and Holland. At the present day the number of books published in any other than the living languages is extremely small.

In America the decline of classic literature is especially remarkable and prevalent. Many of our colleges require in their students but a superficial acquaintance with the Latin language; and with respect to the Greek, are contented with a smat-

tering which scarcely deserves the name of knowledge. And although in others, laudable exertions have been, and continue to be made, for retaining to some profitable extent this part of education, yet the popular prejudice against it is strong and growing; and there is too much reason to fear that this prejudice will, at no great distance of time, completely triumph.[g]

The causes of this revolution are various. Since the commencement of the eighteenth century, the physical sciences have been gradually extending their bounds, demanding more attention, and acquiring greater ascendency. As the objects of study multiplied, a less degree of leisure was left for any particular pursuit. The splendour of several new branches of philosophy, as they successively rose into view, attracted the studious, and gave a new turn to fashion. Hence those who employed themselves in the illustration of the classics, in the settlement of various readings, or in making themselves masters of those venerable remains of antiquity, soon sunk in popular esteem. It became fashionable to represent them as persons void of taste; as "word catchers, that lived on syllables;" as far below the votaries of science in dignity. This ridicule sensibly diminished the public respect for classic literature, and still continues to operate with undiminished force.

g While a great fondness prevails in the United States for giving young men a *College education*, and obtaining for them the usual academic honour of a *diploma*, there is also a prevailing disposition, not only among the youth themselves, but also among parents and guardians, to give them as small a portion of classic, and especially of Greek literature, as possible. Against this latter language, it seems, particular hostility is denounced. And in some of our colleges it requires the exertion of all the authority vested in the immediate instructors, and the governors, to prevent popular ignorance and prejudice from expelling the study of Greek from their plans of education. This is a circumstance which threatens much evil to the interests of literature in our country; and unless the trustees and other officers, to whom the direction of our seminaries of learning is entrusted, combine to oppose the plausible but delusive literary heresy, another generation will witness the most unhappy effects arising from its prevalence.

Another cause which has doubtless contributed to produce the effect in question is, the inconceivable enlargement of the sphere of enterprise and activity which the past age exhibited. New objects of profit and pleasure have arisen, and engaged the public mind; new fields of labour and adventure have been thrown open; and, of course, in calculating an education for active life, the refinements of ancient literature began to receive a smaller share of regard. To which may be added, that the increased intercourse of mankind, on the one hand, by bringing several living languages more into use, necessarily diverted a share of attention from the ancient; and, on the other, by rendering the study of various modern tongues more easy and useful, took away one important argument in favour of a learned language as a medium of general intercourse.

It must be admitted, that this manifest decline of classic literature has been attended with some advantages. In consequence of discarding dead languages, as the ordinary medium of philosophical publications, such writings have become more accessible and popular; the student has more time left for becoming acquainted with his vernacular tongue; the attention of the learned is more directed to moral and physical sciences; the youth destined for active life is no longer condemned to waste his days by devoting them to objects which are, to him at least, of subordinate importance. In a word, the gradual disuse of what are called *learned* languages, may be regarded as an important branch of the system of those who consider the general diffusion of knowledge as a desirable object; and who wish to make every part of it as popular as possible. There are few things more directly calculated to break down the "wall of partition" between the literary and the other

classes of citizens, and to render liberal information the common portion of all ranks in the community, than making living languages the only means of intercourse, and removing the necessity of acquiring any other.

But if some advantages have attended the decline of classic literature; if it have produced a greater diffusion of knowledge, and favoured the progress of the arts and sciences, there is, perhaps, reason to doubt whether it has not produced more and greater evils. It has rendered the intercourse between learned men more difficult, for want of a common medium. It has produced a necessity to consume more time in the acquisition of various modern languages. And, what is of no less consequence, it has caused some of the best and most precious works of antiquity to be little known at the present day, and of consequence to be, in a great measure, lost to the world.

It has been asserted, by the ablest philologists, that the knowledge of the Greek and Roman writers has a most important influence in promoting literary taste. Those writers display excellences with respect to the structure and polish of language, which, it seems to be generally agreed, are unrivalled in the annals of composition. To study these excellences has a natural tendency to render the mind familiar with the philosophy of grammar, and to inspire it with a taste for the refinements of eloquence. It has a tendency to form in the student a capacity to discern, and a solicitude to attain the purity, the precision, and the graces of speech. Perhaps it may be questioned whether a man can possibly understand any one modern language, in its various inflections, beauties, and shades of meaning, without having some acquaintance with those ancient tongues. Certain it is, that almost the whole of that invaluable mass

of instruction on this subject, to be derived from *etymological* inquiries, depends on such an acquaintance, and must be commensurate with its extent. Hence it is supposed, by some of the most judicious literary historians, that the high estimate set on classical literature, and the enthusiastic attention paid to it, until within a few years past, may be considered among the principal causes of that rapid improvement in several European languages, which distinguishes the seventeenth and eighteenth centuries. By diligently studying the ancient models of composition, and habitually referring to them as standards, the literati of those days were enabled to transfuse their beauties into the living languages; to give the latter a large portion of the copiousness, regularity, and numerous excellences of the former; and to convert them from that miserably defective and barbarous state in which they were found, to a degree of richness and refinement bordering on rivalship with their admired patterns.

If these facts and reasonings be admitted, it would seem to follow, that the same course of studies which contributed so much to raise modern languages to their present refined and improved state, must also be considered as useful, if not indispensably necessary to the preservation and support of those excellences which they have attained. The tendency of living languages to fluctuate and change is universally known. The intercourse of different nations; the ignorance, presumption, and affectation of authors; the gradual introduction of provincial barbarisms, and many other causes, are frequently found to debase the purity, and, in no small degree, to affect the regularity of modern tongues. Of the mischief which has been often done, in these respects, even by a single popular writer, the annals of literature furnish numerous

instances. It is true, to possess a language absolutely *fixed*, is neither possible nor desirable. New discoveries in science, new refinements in art, and the continual progress made in various departments of human knowledge, call for new words and phrases, and necessarily give rise to many corresponding changes, some of which are invaluable improvements in speech. But if left unrestrained, these innovations will be wantonly and injuriously multiplied. Every unfledged sciolist will assume the office of a reformer. Additions and alterations will no longer be made conformably to the analogy of the stock on which they are grafted; and language will speedily degenerate into a corrupt, capricious, and unintelligible jargon. Against this degeneracy, perhaps, no barrier is more effectual than the study of the ancient classics, and continually referring to them as the best standards of literary taste which mankind possess. The most illustrious models of English style have, undoubtedly, been produced by those who were intimately acquainted with those classics. Scarcely an instance can be found of an author who was ignorant of them, and who, at the same time, attained any high degree of excellence as a writer in his own language. And if ever the time should come when the polished tongues of antiquity shall cease to be studied in our seminaries of learning, it requires no spirit of prophecy to predict, that our vernacular language will gradually lose the purity and regularity of its proper idioms; become loaded with anomalies and meretricious ornaments; and no longer exhibit that philosophic uniformity, and systematic beauty, which are so desirable and useful. It is believed that the style of some very popular writers, within the last thirty years, furnishes a very instructive comment on the foregoing ideas, and affords abundant evidence of their truth.

But this subject may with propriety be considered as a matter of still more serious concern. To discourage the study of ancient languages, is to discourage one important means of supporting and defending Revelation. With what boldness would every heresiarch assail the foundation and the purity of our faith, if its teachers were generally ignorant of the original records of truth! With what confidence would unbelievers triumph, and with what manifest advantages would they be armed, were the friends of religion unable to appeal to the primitive oracles of inspiration, and to the primitive witnesses of their authenticity! To recommend the dismission of classic literature, therefore, from plans of education, is not only to declare war against taste and sound learning, but also to betray the interests of evangelical truth, and put a new weapon into the hands of its enemies.

No wise man, indeed, would think of enjoining the acquisition of the dead languages upon every youth who seeks a liberal education. To impose such a task upon those who have no view to any of the professions denominated learned, or whose circumstances in life leave little leisure from the toil of active pursuits, would be to make a very improper use of one of the most important portions of life. But that the acquisition is abundantly worthy the labour of making it, to those who have the time and the means necessary for the purpose; that some knowledge on this subject has a tendency to meliorate the whole literary character, even if it be afterwards forgotten; and that the prevailing and increasing disposition to neglect this department of study ought to be regretted as among the fashionable follies of the age, would seem to follow necessarily from the foregoing remarks.

But notwithstanding the declining state of classic literature during the eighteenth century, this period was distinguished by a few events and characters which attracted considerable attention, and which are worthy of being noticed in the present sketch.

The labours of learned men, during the age under consideration, to facilitate the acquisition of the Latin language, have been numerous and useful. *Dictionaries*, *Grammars*, and other similar works have been executed on new and improved plans, with great diligence, perseverance and success. A number of scientific publications have been made in this language, in various parts of Europe, in the course of the century, which will long remain monuments of the learning and taste of the age. A few publications of this description have been made in Great-Britain; but by far the greater number on the continent of Eufope. Well executed and useful helps for acquiring the Greek language have also been multiplied during the eighteenth century, and have contributed to the degree of cultivation which it received.

Before the commencement of the eighteenth century, it is believed, the Latin language was always taught by means of grammars written in the same language. In other words, a plan of instruction was adopted which presupposed the knowledge of that which was meant to be acquired. This absurd custom subjected youth to unnecessary labour, and burdened their memories with words to them altogether unmeaning. In the course of the century a considerable improvement in this respect took place. *Grammars* and *Dictionaries* in the popular language became more common. And what is worthy of remark, in this century, a *Lexicon* for enabling those who understand no other language than English, to acquire the know-

ledge of Greek, as for the first time presented to the public by e celebrated Mr. PARKHURST, of Great-Britain, hose learned and useful labours for promoting thstudy of the ancient languages, and especially ohose in which the sacred volume was originally wten, are well known.

In Greek liteiure the learned men of Holland, for a considerabpart of the century, bore the palm from the contemng world. Among these, SHULTENS, HEMSTERUIS, RUHNKENIUS, VALCKENAER, LENNEP, and SEID, will long be remembered with respect byie friends of learning. The first named of these eat scholars, the immortal ALBERT SHULTENS, arly in the century, investigated, with singular erition and acuteness, the derivation and structuof several languages, and particularly the Greek. He was followed by his countryman, the corated TIBERIUS HEMSTERHUIS,[h] who undertook derive the whole Greek language, various d copious as it is, from a few short primitives, a plan entirely new. His doctrines were furt pursued and illustrated by his disciples, LUDC CASPAR VALCKENAER,[i] and JOHN DANIEL NEP,[j] who offered to the world many refined acurious speculations on the subject. To thesucceeded EVERARD SCHEID,[k] a disciple of the se school, who wrote largely and learnedly on thproposed system of derivation, but differed maally from his preceptor and his fellow pupils. sides the services rendered to Greek literatuny the great critics above men-

h HEMSTERHUIS dit himself, it is believed, publish his doctrine respecting the derivatio the Greek language. This was done by his disciples.

i Vide LUDOVICI CARI VALCKENAERII *Observationes, quibus via munitur ad Origines Grvestigandas, et Lexicorum defectus resarciendos.*

j Vide JOANN. DAS LENNEP *De Analogia Linguæ Græcæ, sive Rationum Analogicarum LiGræcæ Expositio.*

k Vide *Etymologicum Animadversiones ad Analogiam Linguæ Græcæ.*

tioned, the *Ellipses Græcæ* of LAMBERTUS BOS; the *Doctrina Particularum* of HERY HOOGEVEEN;[l] and the ingenious speculations Lord MONBODDO, in his *Origin and Progress of inguage*,[m] have all contributed to unfold more clely than before the etymology, the genius, the baties, and the various excellences of this ancientongue.

But the services of these einent critics have not been all stated. While th pursued further than their predecessors, the anysis of the Greek language, they purified the Gnmar from many absurdities and errors; they intereted and amended many passages in ancient ahors; and contributed in various ways to facitate and recommend the study of those aiors. And even if all their speculations respeng the analysis of the language, and especially ccerning the origin and meaning of the *particles*, shld be judged to be wholly unfounded, which probay few will suppose to be the case, they will doubss be pronounced to have thrown much light ome subjects which they discussed. But a satisfory view of their ingenious and useful labours c only be obtained by the careful perusal of theiumerous publications.

It might have been expecten an age in which the intercourse of men was so ch extended as in the last, and in which so manych repositories of ancient manuscripts were for first time opened

l Doctrina Particularum Linguæ Græcæ, ore et Editore HENRICO HOOGEVEEN. 2 Tom. 4to. This is a l, ingenious, and learned work, on the origin and meaning of the Greek *rticles*. Lord MONBODDO speaks of it in terms of great reepect and apation. See his *Origin and Progress of Language*.

m Lord MONBODDO derives the whole k language from combinations in *duads*, of the ω with the other five ls, α, ε, ι, ο, υ; the ω being always last: so that αω, εω, ιω, οω, re the radical sounds, from which the whole language is derived. It ry remarkable, that the British philologist adopted almost precisely same doctrine on this subject which had been before taught, thoughout his knowledge, by HEMSTERHUIS, and his followers, of the Len school.

to the inspection of the intelligent and the curious, that many remains of ancient genius, before unknown, would have been brought to light. Few acquisitions, however, of this kind have been made by the republic of letters. The industry and zeal of former times, in this pursuit, seem to have left little to be gained by modern exertions. The small additions which have been made during the last age, to the classic treasures before possessed by the world, may perhaps deserve some brief notice.

It had been long known that a composition bearing the title of an *Hymn to Ceres*, and ascribed to HOMER, existed in the second century; but learned men considered it as irretrievably lost. In the eighteenth century this composition was brought to light; and what is remarkable, it was found in one of the rudest and most unclassical countries of Europe. About the year 1775 CHRISTIAN FREDERIC MATTHÆI, a learned German, having been invited to settle at Moscow, in Russia, obtained access, soon after taking up his residence there, to a number of Greek manuscripts, deposited in the library of the *Holy Synod* in that city. Among these manuscripts he found the *Hymn to Ceres* above mentioned, almost entire, which he sent to his friend D. RUHNKENIUS, of Leyden, who, in 1780, committed it for the first time to the press, accompanied with learned annotations.[n] It is, indeed, far from being certain that this *Hymn*, notwithstanding all its celebrity, is really the production of the immortal Grecian bard to whom it is ascribed.[o] The learned editor himself expresses

[n] This *Hymn* was elegantly translated into English verse, and accompanied with learned notes, by RICHARD HOLE, LL. B. 8vo. 1781.

[o] It is generally known that of the other *Hymns* ascribed to HOMER, suspicions have been entertained that the greater part, if not all, are spurious. See on this subject DAVIDIS RUHNKENII *Epistola Critica in Homeridarum Hymnos et Hesiodum, ad virum clarissimum* LUDOV. CASP. VALCKENARIUM, 8vo. Lug. Bat. 1749.

much doubt with respect to this point. The composition, though exquisitely beautiful, is said by good judges to want some of the more striking characteristics of HOMER, and in particular, to be deficient in that energy and spirit for which he is so remarkable.[p]

Nearly contemporaneous with the above mentioned discovery in Moscow, was another made in Venice, by M. VILLOISON, a learned Frenchman, who, among many valuable manuscripts which he examined in the Library of St. *Mark* in that city, found a very curious copy of the *Iliad*, made in the tenth century, and enriched with the *notes* and *scholia*, hitherto unpublished, of sixty of the most eminent critics of ancient times. Besides the *notes* and *scholia*, the manuscript was found to contain *various readings*, equally numerous and important, drawn from the ancient editions of HOMER, given by Chios, Cyprus, Crete, Marseilles, Sinope, and Argos; editions before known only by name, and by some citations of EUSTATHIUS. This manuscript also exhibits various readings drawn from many other editions; so that it may be emphatically called the HOMERUS VARIORUM of all antiquity, and more especially the HOMER of the famous school of Alexandria. M. VILLOISON has since committed this copy of the first Epic poem to the press, and thereby made an inestimable present to the lovers of Greek literature.

To this chapter belongs also some notice of an event which the classical scholar regards with no small interest. Nearly thirty years ago the President DE BROSSES, a distinguished philologist of France, finding, in the course of his researches, some remains of an *History of the Roman Republic*,

p Vide Ομηρου Υμνος εις Δημητραν: vel HOMERI *Hymnus ad Cererem nunc primum editus a* DAVIDE RUHNKENIO. Lug. Bat. 8vo. 1780.

by SALLUST, which had been supposed to be entirely lost, undertook the arduous task of restoring it. After taking immense pains to collect all the quotations which had been made from this precious relic, by the ancient grammarians and others, he found himself in possession of more than seven hundred fragments, which he laid together with so much skill and patience, as to produce a connected work, by no means unworthy of the celebrated Roman whose name it bears. This work was translated into French, and published in 1777, at *Dijon*, in three volumes quarto, under the following title: *Histoire de la Republique Romaine dans les cours du* vii. *Siecle*, par SALLUSTE, &c. It will be readily supposed, that a production of one of the greatest historians of antiquity, recovered in a manner so extraordinary, excited much of the attention of learned men, not only in France, but also throughout the literary world.

Among the numerous monuments of ancient genius, both in literature and the arts, which were dug out of the ruins of *Herculaneum*, in the course of the last age, there were many hundred manuscripts, which excited high expectations among the learned. Of these nearly *eighteen hundred* manuscripts, chiefly Greek, have been long deposited in the Museum at *Portici*, belonging to the King of Naples. But so much trouble and expense have attended all the attempts hitherto made to unrol and decypher them, that the anticipations of the curious have been hitherto but little gratified. It is hoped, however, that better success may attend future exertions in this ample field of literary labour.[q]

[q] In 1802 it was announced to the public, by a letter from Italy, that a manuscript of some importance had been, a short time before, found in the Museum at Portici. It seems the PRINCE OF WALES lately requested of the Court of Naples to authorise Mr. HAITER, one of his librarians, to examine the manuscripts in that museum, which were dug from Hercula-

Many correct and magnificent editions of classic authors have been given to the public, by learned men, and literary institutions, in the course of the last age. These editions not only present specimens of great typographical elegance; but many of them are also enriched with various readings, faithfully collected from numerous manuscripts and printed copies; and with learned annotations, of great value to the student. To give a complete list of these editions in the present brief sketch is impossible. A few only of the most remarkable can be noticed, and these in a very transient manner.

Of the *Greek* classics, the works of *Homer* were edited, during this period, with great splendour, by WOLFIUS and CLARKE; *Herodotus*, by GRONOVIUS and WESSELING; *Thucydides*, by DUKER; *Xenophon* and *Polybius*, by ERNESTUS; *Longinus*, by TOUP; *Demosthenes*, by REISKE; *Hesiod*, by KREBSIUS, BODINI, and LOESNER; *Pindar*, by HEYNE; *Euripides*, by MUSGRAVE; *Sophocles*, by CAPPERONIER; *Aristophanes*, by KUSTER; *Lucian*, by REITZIUS, HEMSTERHUIS, and GESNER; *Plutarch*, by REISKE; *Theocritus*, by REISKE and WHARTON; *Epictetus*, by UPTON; *Anacreon*, by MATTAIRE; *Æschylus*, by PAUW and PORSON; *Diodorus Siculus*, by WESSELING; *Dion Cassius*, by FABRICIUS and REIMARUS; *Lysias*, by TAYLOR; *Isocrates*, by BATTIE and AUGER; and *Callimachus*, by BENTLEY and ERNESTUS.

Of the *Latin* classics the following editions, made, during the period under review, are worthy

neum, that their contents might be ascertained. The authority was granted. Mr. HAITER entered on the task with great zeal and intelligence; and soon discovered a work of EPICURUS, entitled, *Of the Nature of Things*, which was known only from the mention made of it by some writers of antiquity, and which appears to have served as the basis for the poem of LUCRETIUS, on the same subject. At the date of the account a copy of this manuscript was preparing for the press.

of particular notice: *Virgil*, by BURMANN, HEYNE, and WAKEFIELD; *Horace*, by BAXTER, GESNER, and ZEUNIUS; *Cicero*, by VERBERGIUS, OLIVET, and LALLEMAND; *Livy*, by MATTAIRE, DRAKENBORCH, RUDDIMAN, and HOMER; *Tacitus*, by GRONOVIUS, ERNESTUS, BROTIER, GRIERSON[r] and HOMER; *Sallust*, by HOMER; *Quintilian*, by BURMANN, ROLLIN, GESNER, and HOMER; *Lucretius*, by HAVERCAMP and WAKEFIELD; *Ovid*, by BURMANN; *Lucan*, by BURMANN, BENTLEY, and CUMBERLAND; *Persius*, by CASAUBON and HOMER; *Terence*, by BENTLEY; *Justin*, by GRONOVIUS; *Cæsar's Commentaries*, by CLARKE; *Phædrus* and *Petronius Arbiter*, by BURMAN; *Pliny*, senior, by BROTIER; *Pliny*, junior, by LONGALIUS; *Tibullus*, *Catullus*, and *Propertius*, by VULPIUS; *Suetonius*, by PITISCUS, BURMANN, and OUDENORP; *Eutropius*, by HAVERCAMP; *Claudian*, by GESNER; *Florus*, by DUKER and FISCHER; *Quintus Curtius*, by SNAKENBURG; *Aulus Gellius*, by GRONOVIUS; and *Silius Italicus*, by DRAKENBORCH.

From the above very imperfect list it appears that classic literature has been cultivated, during the last century, with most zeal and success in Germany and Holland; Great-Britain is, perhaps, entitled to the next place; and afterwards, in succession, come France and other countries on the continent of Europe. Greek literature in France was at a low ebb during the greater part of the period of this retrospect, and is still but little cultivated in that country.

But the eighteenth century is especially distinguished by the number and value of the *Transla-*

[r] Mrs. GRIERSON, an Irish lady, who was "possessed of singular erudition, and had an elegance of taste, and solidity of judgment, which justly rendered her one of the most wonderful as well as amiable of her sex. Her *Tacitus* is one of the best edited books ever delivered to the world." See HARWOOD's *View of the Classics*.

tions of classic authors which it produced. The Greeks were almost, if not entirely strangers to this kind of literary labour. The Romans had a few translations, but they were little esteemed, and gained their authors but small consideration in the republic of letters. A number of performances of this kind were produced in the sixteenth and seventeenth centuries; but in the eighteenth they more than ever abounded, and attained a degree of excellence altogether without example. A few of the most valuable of these may be mentioned, without attempting to furnish a complete list.

The following translations of *Greek* classics into the *English* language, during the late century, deserve particular notice. The *Iliad* and *Odyssey* of *Homer*, by POPE[s] and COWPER; *Herodotus*, by LYTTLEBURY, BELOE, and LAMPRIERE; *Thucydides* and *Xenophon*, by SMITH; parts of the works of *Aristotle*, by TWINING, PYE, ELLIS, and GILLIES; *Lucian*, by FRANKLIN and CARR; *Demosthenes*, by LELAND; *Epictetus*, by CARTER;[t] *Plutarch*, by LANGHORNE; *Longinus*, by SMITH; *Polybius*, by HAMPTON; *Isocrates*, by GILLIES; *Isæus*, by JONES; *Hesiod*, by COOKE; *Theocritus*, by POLWHELE; *Æschylus*, by POTTER; *Sophocles*, by POTTER and FRANKLIN; *Euripides*, by POTTER and WOODHULL; and *Callimachus*, by TYTLER.

The translations of *Roman* classics during the same period were still more numerous. Of a very long list the following may be considered as a specimen. The *Eneid* of *Virgil* was presented in an English dress by PITT and BERESFORD, and the *Eclogues* and *Bucolics* of the same illustrious Ro-

[s] The translation of the *Iliad* by POPE is pronounced, by Dr. JOHNSON, to be "a poetical wonder; a performance which no age or nation can pretend to equal; a work, the publication of which forms a grand era in the history of learning." *Life of* POPE.

[t] Mrs. ELIZABETH CARTER is another instance of great classical erudition and taste in a female of the eighteenth century.

man, by WHARTON; the works of *Horace*, by SMART, CREECH, FRANCIS, and BOSCAWEN; *Juvenal*, by MADAN; *Persius*, by BREWSTER, MADAN, and DRUMMOND; *Livy*, by HAYE and BAKER; *Tacitus*, by GORDON and MURPHY; *Lucan*, by ROWE;* the *Metamorphoses of Ovid*, by GARTH, DAVIDSON, and CLARKE; the *Orations of Cicero*, by GUTHRIE; and selections from the same, by DUNCAN; *Sallust*, by GORDON; the *Commentaries of Cæsar*, by BLADON; the *Epistles of Pliny*, by ORRERY and MELMOTH; the *Epistles of Cicero*, by MELMOTH; the *Epistles of Seneca*, by MORRELL; *Terence*, by COOKE and COLMAN; *Tibullus*, by GRAINGER; *Aulus Gellius*, by BELOE; and *Plautus*, by WARNER.

The translations made into several of the languages of the continent of Europe, during the period under consideration, are numerous and respectable. But of these too little is known to attempt any thing like a discriminating selection. The *Iliad* and *Odyssey* of *Homer* were ably translated into German, by Voss; into Italian, by CÆSAROTTI,* and CERUTI; into French, by ROCHEFORT; and into Spanish, by MALO. The *Cyropædia* of *Xenophon* was translated into French, by DACIER and GAIL, and into German, by WIELAND; *Thucydides*, into French, by LEVESQUE, and *Herodotus*, into the same language, by LARCHER; the *Politics of Aristotle*, into French, by CHAMPAGNE; *Theocritus*, into the same language, by GAIL; *Demosthenes*, also into French, by TOURREIL; *Hesiod*,

* "The version of *Lucan*," says Dr. JOHNSON, "is one of the greatest productions of English poetry; for there is perhaps none that so completely exhibits the genius and spirit of the original. It deserves more notice than it obtains; and as it is more read will be more esteemed."

* Several of the translations above mentioned, made on the continent of Europe, are said to possess first rate excellence. In particular those of Voss and CESAROTTI, both poetical, are represented as having merit of a superior kind.

into German, by SCHUTZE; and *Plutarch*, also into German, by PENZEL.

Versions of *Virgil* were made, in the period of this retrospect, into Italian, by BENDI; and into German, by Voss and SPITZENBERGEN; of *Horace*, into French, by SANADON and DARCU; of *Sallust*, into German, by SCHLUTER; and of *Tacitus*, into French, by GUERRIN, BLETTERIE, and DOTTERVILLE.

But notwithstanding all the labours of learned men to promote the knowledge of the Greek and Latin classics, the study of them was almost uniformly declining from the beginning to the end of the century. And in the course of little more than two centuries, this kind of knowledge, from being considered the most interesting and important that could occupy the attention of man, came to be regarded, by a large portion of the literary world, as among the most useless objects of pursuit.

CHAPTER XIV.

ORIENTAL LITERATURE.

THE literature of *Asia*, the birth-place and cradle of our species, where Philosophy first reared her head, and whence Greece and Rome borrowed a large portion of their knowledge, cannot be otherwise than highly interesting to the enlightened and inquisitive mind. At the beginning of the eighteenth century much had been *written*, but comparatively little was really *known* concerning that important part of the globe. The works

of POCOCKE and HYDE, of Great-Britain; of ERPENIUS and GOLIUS, of Holland; and of D'HERBELOT, BOCHART, BOUCHET, and others, of France, toward the close of the preceding century, had all communicated to the public much curious and valuable information, respecting various eastern countries, particularly *Arabia*, *Persia*, and some parts of *India*. But these works had so limited a circulation, and the intercourse between Europe and the East was so small, that few were excited to pay much attention to this branch of literature. In Great-Britain, especially, during the first half of the century, oriental learning was at a low ebb, insomuch that, during the reign of George I. a great orientalist was a rare phenomenon in that country.

But in the latter half of the century under consideration, more encouraging prospects began to open. Indeed, within the last forty years, some departments of oriental literature have been cultivated with a fervour of zeal, and with a brilliancy of success, highly interesting and honourable to the age. And even in those departments which have been less diligently and successfully cultivated, some events and characters have adorned this period, which are worthy of notice in the present sketch.

HEBREW LITERATURE.

The first place in this chapter is due to that language in which it pleased infinite Wisdom to record and convey the divine will to man. A language which, if it be not the most ancient in the world, will doubtless be considered among those which have the best claims to this honour. With regard to this language, though it has been less

studied through the learned world in general, during the last age, than in some preceding periods; yet several events took place, and a number of important publications were made respecting it, which it would be improper to omit in the most rapid survey of oriental learning.[w]

The controversy respecting the *Vowel-Points*,[x] which was begun in the sixteenth century, by ELIAS LEVITA, a learned Jew, and which was pursued with so much zeal and learning, in the seventeenth, by the BUXTORFS, CAPELLUS, WALTON, and others, was continued in the eighteenth, and gave rise to much interesting discussion. Early in the century M. MASCLEF, a Canon of Amiens, published his grammar, in which he undertook to teach the Hebrew language without points.[y] He was opposed by GUARINUS, a Benedictine of France, with great learning and warmth; but defended by his countrymen, the famous Father CHARLES FRANCIS HOUBIGANT, M. DE LA BLETTERIE, and others. The system of MASCLEF ob-

w For a number of the facts and names mentioned in these paragraphs on Hebrew literature, the author is indebted to his venerable friend, the Rev. Dr. KUNZE, senior of the Lutheran Clergy in the State of New-York, and late Professor of Oriental Languages in Columbia College. The various acquirements of this gentleman, and particularly his oriental learning, have long rendered him an ornament of the American republic of letters. He has probably done more than any individual now living to promote a taste for Hebrew literature among those intended for the clerical profession in the United States. And though his exertions have not been attended with all the success that could have been wished, owing to the want of that countenance from the public and from individuals which is necessary; yet he is doubtless entitled to the character of a benefactor of the American churches.

x The great questions concerning the Hebrew *Points* respect their *antiquity* and *importance*. The first question is, whether they were invented by the *Masorites*, a set of learned Jews, who are supposed to have lived about the fifth century after Christ, and who are said, by the addition of *vowels* and *accents* to have fixed the true reading of the sacred text; or whether these vowels were employed by those who first wrote the Hebrew language, and of course made a part of the original writing of the scriptures? The second question has a respect to the *utility* and *importance* of the points; or how far they are *necessary* and *useful*?

y *Grammatica Hebræa, à punctis aliisque Masorethicis inventis libera.* 1716.

tained general credit in France; but the greater number of German and Dutch critics opposed it. In England it was, with some alterations, espoused and introduced by HUTCHINSON, who was followed by BATE, and PARKHURST, and more recently by Professor WILSON, of the University of St. Andrews, in North-Britain.

The antiquity and importance of the *Points* have also been maintained, during the period in question, by the great ALBERT SCHULTENS, of Leyden; by the learned Professor JAMES ROBERTSON, of Edinburgh; and by the celebrated orientalist, Professor TYCHSEN, of Germany. On the other hand, the points have found zealous opponents in the same period, in SHARPE, of Great-Britain; in DUPUY, a learned Frenchman; and in the celebrated JOHN DAVID MICHAELIS, of Germany.[z] The result of this controversy seems to be a general impression, among those most competent to judge, that the points cannot boast of that antiquity which SCHULTENS and ROBERTSON would assign to them;[a] but that they were invented by men deeply skilled in the language; that they serve as a good commentary, and are therefore of great utility, and deserve to be respectfully regarded.

In 1736 Bishop HARE published a plan for ascertaining and restoring the *Hebrew Metre*.[b] He supposed that he had revived the knowledge of the true versification of this language, and that

z Professor MICHAELIS, in the former part of his life, was favourable to the points; but afterwards changed his opinion. He was one of the most stupendous oriental scholars of the age, and probably one of the greatest that ever existed.

a *Clavis Pentateuchi: sive Analysis Omnium Vocum Hebraicarum, &c. Auctore* JACOBO ROBERTSON, S. T. D. *Ling: Orient. in Acad. Edin. Prof.* 8vo. 1770.

b *Psalmorum Liber, in Versiculas Metrice divisus, et cum aliis Critices Subsidiis, tum præcipue Metrices ope, multis in locis integritati suæ restitutus. Auctore* FRANCISCUS HARE, S. T. P. *Episcopus Cicestrensis.* Tom. 2. 8vo. 1736.

he was in possession of principles by which it might be scanned, like any other poetry, and its rythm discovered with the utmost precision. He supposed that in Hebrew poetry all the feet consist of two syllables; that no regard is to be paid to the quantity of the syllables; that when the number of syllables is even, the verse is *Trochaic*, and the accent to be placed on the first; but that when the number is odd, the verse is to be accounted *Iambic*, and the accent to be placed on the second syllable; that the periods generally consist of two verses, often of three or four, and sometimes of a greater number; that verses of the same period, with few exceptions, are of the same kind; that the Trochaic verses, for the most part, agree in the number of feet, but that to this rule there are a few exceptions; that in the Iambic verses the feet are in general unequal, though in some instances it is found to be otherwise. To accommodate the sacred text to these doctrines, he indulged in many conjectures and fancied emendations, which were altogether capricious and unwarrantable.[c] This hypothesis was generally considered, by the most judicious critics, as a fanciful and unfounded speculation. The Bishop's doctrine was, however, adopted by Dr. THOMAS EDWARDS, of Great-Britain, a contemporary Hebrew scholar of considerable reputation. It was also adopted and carried to a still greater length, by Mr. WILLIAM GREEN, an English clergyman, in his *metrical version* of the Psalms.[d] But at the close of the century, it is believed, this doctrine

c GOMARUS, a learned Hebraist of Holland, in the seventeenth century, invented and taught an hypothesis concerning *Hebrew Metre*, somewhat resembling that of Bishop HARE, but not attended with so many arbitrary and conjectural emendations of the sacred text.

d *A New Translation of the Psalms from the Original Hebrew. By* WILLIAM GREEN, *M. A. Rector of Hardingham, Norfolk.* 8vo. 1762.

had few if any advocates, and had entirely ceased to command public attention.

A much more valuable improvement in Hebrew literature, in the period under consideration, was that effected by the labour and talents of Dr. LOWTH, Bishop of London. This profound and elegant scholar, in the year 1753, published a learned and highly interesting work on *Hebrew Poetry*, in which he displayed its structure, genius, beauties, and various kinds, more successfully than any preceding writer.[e] This great work, which is regarded by every orientalist as a most important acquisition to the Hebrew critical art, formed a memorable era in the investigation of the subject of which it treats. The Bishop has been followed in this laudable and instructive inquiry, by HERDER, a learned, ingenious, and eloquent writer of Germany, who is said to have pursued the subject still further, and to have thrown additional light on the spirit of Hebrew poetry.

The publication of the works of the celebrated JOHN HUTCHINSON, in Great-Britain, at an early period of the century, doubtless contributed something to promote the study of Hebrew in that country. It was before remarked that this philosopher and his followers laid great stress on the integrity of the common Hebrew text, and drew from a fanciful interpretation of Hebrew words many theological and philosophical principles, in their view of the utmost importance. This circumstance, of course, prompted all who applied themselves to the study of HUTCHINSON's writings, and especially those who studied them carefully and deeply, to acquire as much Hebrew learning as they were

e *De Sacra Poesi Hebræorum Prælectiones habitæ a* ROBERTO LOWTH, &c. &c. 4to. 1753. This work has been translated by the Rev. G. GREGORY, F. A. S. and published in 1787, in 2 vols. 8vo.

able. Those who have attended to the progress of knowledge in Great-Britain during the last age, have probably been able to trace very distinctly the influence of this visionary philosophy in producing the effect which has been stated.

Of the great number of Hebrew grammars which have been published since the revival of letters, that of BUXTORF, till near the close of the seventeenth century, had received by far the largest share of public approbation. And though it was dry, complicated, tedious, and of course difficult to be acquired; yet as it was on the whole well constructed, and contained an excellent body of masoretical rules, it continued long to be the reigning favourite among the teachers of this language. CAPELLUS seems to have been the first who made a successful attempt to divest Hebrew grammar of its superfluous precepts, and perplexing appendages. Since his time the system of simplification has been carried still further by MASCLEF, and many others, both the advocates and opposers of the points.

At an early period of the century, Professor DANZ, of Germany, published a Hebrew and Chaldeac Grammar, in which he almost entirely departed from the methods before in use. Instead of perplexing the learner with numberless *minutiæ*, which are apt at the beginning to disgust and discourage, he presented the elements of the language in a simple, easy, and attractive form. The Danzian method soon became general, was adopted as the ground work in innumerable subsequent grammars, and is yet the prevailing one in the schools and universities of Germany. The Hebrew grammars produced in Great-Britain, during the last age, were numerous, and a few of them highly valuable. Out of a long list which might be made, those of PARKHURST, ROBERTSON, GRAY,

WILSON, and FITZGERALD, are entitled to particular distinction.[f]

In the eighteenth century, for the first time, grammars, dictionaries, and other books, for teaching the elements of the Hebrew language, were presented to the public in *English*. Before this period, all such works were in the Latin language, and of course the acquisition of this language, at least, was necessary before any thing could be done towards acquiring the Hebrew. In the last age this difficulty was removed. Those who are acquainted with no other than their native tongue are now furnished with books, by means of which they may be conveniently initiated into the knowledge of Hebrew literature, so far as is necessary for enabling them to peruse the sacred scriptures. Mr. PARKHURST, it is believed, first obliged the public with a work of this nature. His example was followed by his countryman, Mr. BATE; since which time the same means for rendering Hebrew literature more accessible, have been adopted by Professor WILSON, Professor FITZGERALD, and several others.

Those who studied the Hebrew language in the eighteenth century derived an advantage from the circumstance of the other oriental dialects, the Syriac, Chaldeac, Arabic, and even the Coptic and Æthiopic, being more and better cultivated during this time than in any former period. The aid furnished to the student of Hebrew by the knowledge of these dialects, will be readily un-

[f] In the formation of some of these grammars the *Points* and *Accents* are employed; in others they are rejected; while, in a third class, a middle course is pursued between a total rejection and an unlimited admission of them. The last is particularly the case with the grammar of Dr. FITZGERALD, Professor of Hebrew in the University of Dublin, published in 1799. He retains the vowel points, and such of the accents as are most distinguishable and useful. All the other accents, of which the number is considerable, he has discarded.

derstood and appreciated by those who have any knowledge of the subject. The labours of RELAND and SCHULTENS, in Holland; of REINECCEIUS, the MICHAELISES,[g] (especially the last of that name) STOCK, EICHORN, BODE, STORR, and ADLER, in Germany; of LA CROZE, in France; of DE ROSSI, in Italy; and of DURELL, RIDLEY, WOIDE, and WHITE, in Great-Britain, to illustrate these auxiliary languages and dialects, or to present the public with various readings, and versions from them, are well known, and have often been the subjects of high praise.

The collection and collation of ancient Hebrew *Manuscripts*, which were pursued in the eighteenth century to an extent greatly beyond any former example, may be considered as among the distinguishing honours of the age. In 1707 Dr. JOHN MILL, a learned English divine, published an edition of the New Testament, with the various readings, collected from many different manuscripts, to which he had devoted the unwearied labour of thirty years. In 1752 the celebrated WETSTEIN, of Germany, whose talents and erudition are well known, published a work on the same plan, but, as many suppose, executed with greater judgment. He, like his predecessor, expended much time and labour in his work, and travelled into foreign countries to examine all the manuscripts that could be procured.[h] These pub-

g In 1762 that illustrious orientalist, JOHN DAVID MICHAELIS, published a number of curious and interesting questions, relating to Arabic literature, which he had directed to a number of learned men, sent by the King of Denmark into Arabia, and to which he desired their attention. These queries not only led to much inquiry, and produced much information, from the persons to whom they were immediately addressed; but they also led to a more general study of the Arabic language, as an auxiliary to the Hebrew, than had before taken place in the colleges and universities of Germany.

h The collations and various readings of MILL, KUSTER, WETSTEIN, GRIESBACH, MATTHEI, and others, will be noticed more particularly when the *Literature of the Christian Church* shall come under consideration, in the *fourth* and last part of this work.

lications, together with a conviction of its utility and importance, animated Dr. BENJAMIN KENNICOT, of the University of Oxford, to engage in a similar undertaking with respect to the Hebrew text of the Old Testament. As early as 1753, by a dissertation on the state of the common printed text, he called the attention of the religious world to his design, and laid the foundation of his great work. His plan was no sooner announced than he found ample support both of a pecuniary and literary kind.[i] He collated more than 700 manuscripts, obtained from different countries,[j] besides many printed copies; and was enabled from these sources, to present a very curious and instructive amount of various readings. In 1776 the first volume of his work appeared, and in 1780 the second, which completed his plan, was laid before the world.[k] Every lover of oriental literature must feel himself under deep obligations to this great collator, not only for the light which his indefatigable labour threw on the sacred Scriptures, but also for that taste and zeal in Hebrew literature, and particularly in biblical criticism, which his example evidently and remarkably revived in Great-Britain.[l]

i The *literary* aid rendered to Dr. KENNICOT, was received from almost every part of the Christian world, particularly from Great-Britain, Germany and France. The *pecuniary* aid with which he was favoured, for the prosecution of his plan, was derived chiefly from his own country, in which there was raised, by subscription, for this purpose, the sum of £36,000 sterling, or upwards of 160,000 dollars. A degree of liberality which reflects the highest honour on Great-Britain and the age.

j Among the great number of manuscripts examined by Dr. KENNICOT, there was one from America. This belonged to the family of the late Mr. SOLOMON SIMSON, of the city of New-York, who sent it to the learned collator in 1771, and had it returned in 1772. This manuscript is the 144th in Dr. KENNICOT's list, under the title of "*Codex Americanus Nov Eboracensis.*"

k Vetus Testamentum Hebraicum cum variis Lectionibus. Edidit BENJ. KENNICOT, S. T. P. *Oxonii.* 1776, 1780. 2 vols. folio.

l It is certain, that since the publication of KENNICOT's work, the study of Hebrew has remarkably revived in Great-Britain. At the close of the eighteenth century it is probable there was a greater number of Hebrew scholars in that country than at any former period within an hundred years, perhaps than ever before.

When Dr. KENNICOT began his celebrated work, he entertained an opinion decidedly opposed to the integrity of the common Hebrew text of the Bible. But, though there is no reason to suppose that he altered his opinion afterwards; yet his labours certainly produced a conviction in the minds of discerning and impartial men, entirely contrary to what he expected. They confirmed rather than destroyed the general confidence in the masoretical reading; and instead of subserving the cause of infidelity, or heresy, by unsettling the sacred text, as the *Hutchinsonians* and some others had predicted, their influence was directly of an opposite kind.

Encouraged by the success of Dr. KENNICOT, and influenced, also, by the circumstance of his having a convenient and easy access to the Ambrosian Library of Milan, JOHN BERNARD DE ROSSI, Professor of Oriental Languages in the University of Parma, undertook a similar work, which he completed, and laid before the world in 1786.[m] He collated many manuscripts which KENNICOT had never seen, and added many important readings to the former treasure. His work may, therefore, be considered a very useful supplement to that of his laborious predecessor. The same effect resulted from this publication as from that of KENNICOT. It tended to confirm the masoretical text, and disappointed the hopes of those who wished to unsettle or dishonour it.[n] Drs. DOEDERLEIN and

[m] *Variæ Lectiones Veteris Testamenti, ex immensa MSS. editorumque Codicum congerie haustæ, et ad Samar. Textum ad vetustiss. versiones, ad accuratiores S. Criticæ fontes ac leges examinatæ, opere ac studio* JOHAN. BERN. DE ROSSI, S. T. P. *et in R. Parmensi Acad. Ling. Ori. Prof.* tom iv. The author speaks thus of his work, "*Producuntur hic variæ Lectiones* V. T. *ex immensa MSS. editorumque codicum congerie, id est, ex mille quadringentis septuaginta et amplius sacri Textus codicibus.*"

[n] It is well known that in the common Hebrew Bibles there are remarks, or various readings in the margin, called *Keri*, to distinguish them from the reading in the text, called *Chetib*. The latter is, in many places, ob-

MEISSNER, of Germany, by selecting and publishing, in a cheap and convenient form, the most important and useful of the various readings exhibited by KENNICOT and DE ROSSI, produced a work which does honour to themselves, and deserves to be mentioned as one of the ornaments of the age.*

Many other publications were made, during the eighteenth century, which facilitated and promoted the study of the Hebrew language. Among these the *Critica Sacra* of EDWARD LEIGH, an English divine, and the *Clavis Linguæ Sanctæ* of CHRISTIAN STOCK, a learned German, are worthy of high praise. As the seventeenth century was adorned by the BUXTORFS, of Switzerland, and the study of the oriental languages greatly promoted by their example and their labours, so the eighteenth was rendered remarkable by the wonderful oriental learning, and the numerous publications on this branch of literature, by the MICHAELISES, of Germany. There were three in succession of this name, who all hold high and honourable places in the list of modern scholars, viz. JOHN HENRY, CHRISTIAN BENEDICT, and JOHN DAVID. The last, who was the son of JOHN HENRY, and who was nearly half a century engaged in promoting oriental literature, exceeded both his father and uncle in this species of erudition, and, indeed, might probably with truth be pronounced the greatest orientalist that the western world ever beheld. His *Oriental and Exegetical*

ecure and difficult of construction. The *Keri* is the Masoretical emendation, or different reading; and of these there are in the Bible about *one thousand*. It is remarkable that, of this number, *nine hundred and eighty-six* have been found in the texts of different manuscripts, by the industry of *Kennicot* and *De Rossi*. A result so honourable to the *Masorites* could scarcely have been expected.

* *Biblia Hebraica, olim à* CHRISTIANO REINECCIO *edita, nunc denuo cum variis lectionibus, ex ingenti codicum copia, á B.* KENNICOTTO *et* JOHAN. BERN. DE ROSSI, &c. *ediderunt* J. C. DORDERLEIN, *et* J. H. MEISSNER, 8vo. Leips. 1793.

Library,[p] and his numerous detached treatises, may be said to have formed a new epoch in Hebrew literature in Germany. Another work of great importance, which deserves to be mentioned, and which certainly contributed to keep alive and extend the zeal for this branch of literature which had been before excited, was a periodical publication, entitled the *Universal Library of Biblical Literature*, printed at Leipsic, from the year 1777 to 1786, in eighteen volumes. This publication was conducted by Professor EICHHORN, of Jena, and is full of masterly criticism, and most valuable information for the orientalist.[q] To these may be added the *Oriental Library* of Professor HIRT; the *Apparatus Criticus* of the learned BENGEL; the great Hebrew *Lexicon* of CALMET, a stupendous monument of erudition; and the various publications of Drs. HUNT, SHARPE, LOWTH, and many others, in Great-Britain, and on the continent of Europe.[r]

The study of the Hebrew language in America has long been at a low ebb. At the close of the seventeeth century much knowledge of this language appears to have existed among those venerable Divines who planted and ministered to the churches in New-England. Indeed, at that period

[p] This is a periodical publication, begun in 1771, and concluded in 1783, and consists of 23 volumes, besides the general index. It was renewed in 1786, under the title of *Neue Orientalische Bibliothek*, and continued for a number of years, in which time there were at least 8 volumes more published.

[q] In this rich treasure of oriental learning are found valuable treatises not only from the pen of the immediate conductor, but also many from Professor BRUNS, Professor TYCHSEN, and others, whose names are a sufficient pledge for the display of great erudition and talents in oriental literature.

[r] For a more particular notice of several publications since those of Dr. LOWTH, more particularly by Drs. NEWCOME, BLANEY, WINTLE, HODGSON, and a long catalogue of Hebrew translators and critics, the reader is referred to the fourth part of this work, under the head of *Biblical Literature.*

this kind of knowledge was possessed by very few in any other part of our country. Accordingly the colleges of *Harvard*, in Massachusetts, and of *Yale*, in Connecticut, it is believed, are the only seminaries of learning in the United States in which the Hebrew language has been, for any considerable portion of time, regularly taught; and at the present period they are the only American seminaries in which there are regular oriental instructors.[s] A few of those destined for the clerical profession in our country, make themselves acquainted, to a small extent, with this language, so inestimably important to every biblical critic; but the acquisitions of such are generally made by their own unassisted industry, or by means of private tuition.[t]

In 1779 the office of instruction in the Hebrew language was added to a professorship, then held in the University of Pennsylvania, by the Rev.

[s] If the author does not mistake, the Hebrew language has been taught in Harvard College for nearly a century, and during the greater part of that time by a professor regularly appointed for the purpose. In Yale College, there has been, for many years, more or less attention devoted to Hebrew literature; but it was not until the autumn of 1802 that a professor for this branch of instruction was appointed. The gentleman selected to fill this office is the Rev. EBENEZER G. MARSH, who has the character of an excellent Hebrew scholar.

[t] About the year 1760 the Rev. J. G. KALS, a German clergyman, who had an uncommon stock of Hebrew learning, came to America. Anticipating the want of Hebrew types in this country, he brought with him a large edition of a voluminous Hebrew grammar, which he had composed, and some time before published; and many copies of a dictionary, also his own production, together with many other books of a similar kind. He expected, by the sale of these works, and by the encouragement which he should meet with as an instructor of this language, to gain an ample support. But he soon found that Hebrew literature was not a very saleable article in America; and that all his zeal was not sufficient to inspire even his clerical brethren with a general taste for its cultivation. Being present at a meeting of the clergy, when some candidates for the gospel ministry were examined, and finding that ignorance of this language was not considered as a disqualification for the sacred office, he rose and made a speech, filled with reproaches, in which he denounced his brethren as "*a generation of vipers*," and left them with disgust. When the members of the same ecclesiastical body afterwards heard of his being in distress, and made a liberal collection for his relief, he received it with this sarcastic remark, "I am Elijah; the ravens must feed me."

Dr. KUNZE; but few availed themselves of the opportunity thus afforded for gaining a knowledge of this ancient tongue; and the professorship was continued only for a short time. In 1784 Professor KUNZE removed to the city of New-York, and was soon appointed to a station in Columbia College, similar to that which he had held in the University of Pennsylvania.[v] This professorship had a slender support afforded to it, by an annual allowance from the legislature of New-York, for five years; but at the end of this time, the allowance being withdrawn, the department of oriental instruction was discontinued. This is one among the several instances of disreputable literary retrocession, by which the United States were distinguished at the close of the eighteenth century.

Some small publications for promoting Hebrew literature were made in America during the century under review. Among these a Hebrew Grammar, by JUDAH MONIS, many years ago a teacher of this language in the University of Cambridge, in Massachusetts; a grammar, by STEPHEN SEWALL, also some time since an Hebrew instructor in the same institution; and a work of a similar nature by Dr. JOHNSON, formerly President of King's College, in the city of New-York, may be reckoned the most considerable.[w] They are

[v] Professor KUNZE, soon after receiving this appointment in Columbia College, entered on the duties of his office with an enlightened and ardent zeal. That he might be more extensively useful, he took the earliest opportunity of sending to Europe for a number of curious and voluminous works, in oriental literature; and resolved by this means not only to furnish himself with the best publications for teaching the Hebrew language in the most profitable manner, but also for initiating his pupils into the knowledge of the *Arabic* and *Syriac* dialects, for which he was abundantly qualified. But all his exertions were rendered abortive by the unreasonable and misplaced *economy* of our Legislators, who have not infrequently acted as if they considered the interests of literature among the most unimportant objects of their attention.

[w] Professor KUNZE also composed a Hebrew grammar on an improved plan, for the use of his pupils, which he designs to publish as soon as a prospect of sufficient encouragement appears.

only mentioned in this place as evidences that there has been some taste for Hebrew literature in America; and especially that a few individuals have displayed some zeal for its promotion, which only required public patronage to have been more successful.

ARABIC LITERATURE.

Though something was said in the preceding section of the Hebrew language having been more successfully studied in modern times, on account of the increased knowledge of Arabic literature; yet the subject is worthy of more particular notice.

Scarcely any oriental language was so well understood in Europe, at the close of the seventeenth century, as the Arabic. The excellent publications of ERPENIUS and GOLIUS, of Holland, for facilitating and recommending this branch of eastern literature, had been then laid before the world, and were of so superior a character, that, by means of these helps, Sir WILLIAM JONES assures us, we may understand the learned Arabic better than the deepest scholar at Constantinople, or at Mecca.[w] The *Bibliotheque Orientale* of M. D'HERBELOT, a very learned and entertaining work, may also be mentioned among those aids which had been furnished in the preceding century, for the attainment of the same object. Since that time further light has been thrown on the literature of Arabia, by the observations of several travellers, and by the labours of various learned men.

Early in the century ADRIAN RELAND, of Holland, and JOHN HUDSON, and Mr. LE ROQUE,[x] of

[w] See Sir WILLIAM JONES's *Works*, vol. i. p. 39.

[x] *Translation of* ABULFEDA's *Arabia.* 12mo. Lond. 1718. And also his *Account of Arabian Customs and Manners.* 12mo. Lond. 1732.

Great-Britain, laboured much, and with very honourable success, to illustrate the literature and science of Arabia. They were followed by ALBERT SCHULTENS,[y] of Holland, and GEORGE COSTARD,[z] an English divine, who were certainly among the most accomplished Arabic scholars of the age, and whose various publications contributed to extend this species of knowledge. The latter, in particular, distinguished himself by his illustrations of Arabian astronomy; and has been pronounced, by a good judge, to be one of the most profound oriental astronomers ever born out of Asia. In Arabic literature, also, the labours of the MICHAELISES, REISKE, BODE, and STORR, of Germany; of Professor WHITE and Sir WILLIAM JONES, of Great-Britain; and of M. RENAUDOT, the Abbé MARIGNY, and M. DE SACY, of France, deserve to be mentioned with high encomium. To the above may be added the information communicated by several travellers, among whom NIEBUHR, of Denmark, holds a distinguished place.

As in the seventeenth century the learned men of Holland were the great sources of information in Arabic literature, and had done more than those of any other country in Europe, to advance its cultivation; so in the eighteenth it is believed that Great-Britain and Germany successfully vied with that country in the production of eminent Arabic scholars. Still, however, Holland held a high place with respect to this branch of oriental literature. The names of RELAND and SCHULTENS alone do

y *Monumenta Antiquissimæ Historiæ Arabum.* SCHULTENS signalized himself by maintaining, in opposition to GOUSSET and DRIESSEN, that, in order to gain a perfect knowledge of the Hebrew, it was necessary to join with it not only Chaldeac and Syriac, but also, and more particularly, the Arabic.

z See his *Letters on the Rise and Progress of Astronomy among the Ancients.* 8vo. 1746. And also his *General History of Astronomy, including that of the Arabians.* 4to. 1777.

great honour to their nation, and may stand in the place of an host of minor orientalists.

In the eighteenth century, the *Koran*, or sacred book of the Mahometans,[a] was, for the first time, translated into English, from the original Arabic. In the seventeenth century that work was first translated into the French language, by M. Du Ryer, Consul of the French nation in Egypt, but in a very imperfect manner. Soon afterwards a translation from this version, with all its inaccuracies and imperfections, was made into English, by Alexander Ross, who knew but little of the French language, and nothing of the Arabic; and who, of course, as might have been expected, added a great mass of mistakes to those of Du Ryer. But in the century under consideration, this ancient record of the Mahometan faith was ably translated into English, from the original Arabic, by Mr. George Sale, an English gentleman, profoundly versed in the literature of Arabia, and who accompanied his work with instructive and highly interesting annotations. The appearance of this version may be considered as forming an epoch in the progress of the sacred literature of Arabia, among the learned of Europe. The translations of some other important works, both prose

a "The book which the Mahometans call the *Koran*, or *Alcoran*, is composed of several papers and discourses of Mahomet, which were discovered and collected after his death, and is by no means that same *Law* whose excellence Mahomet vaunted so highly. That some parts of the true *Koran* may be copied in the modern one, is indeed very possible; but that the *Koran*, or *Law*, given by Mahomet to the Arabians, is entirely distinct from the modern *Alcoran*, is manifest from this, that in the latter Mahomet appeals to and extols the former, and therefore they must be two different compositions. May it not be conjectured that the true *Koran* was an Arabic *Poem*, which Mahomet recited to his followers, without giving it to them in writing, ordering them only to commit it to their memories? Such were the laws of the *Druids* in Gaul, and such also those of the Indians, which the Brahmins receive by oral tradition, and get by heart." Mosheim's *Eccles. Hist.* vol. ii. p. 158.

and poetical, from the Arabic, in the course of the last fifty years, may also be mentioned as favourable to the same object.

PERSIAN LITERATURE.

The Persian language was also an object of considerable attention, and the knowledge of Persian literature made some progress in Europe during the last age. It was before remarked that the labours of Dr. HYDE, towards the close of the seventeenth century, contributed much to the promotion of this object. This gentleman, from various Persian and Arabian writings, from the relations of travellers, together with numerous letters from persons in the east, compiled his celebrated work on the Ancient Persians, which has been ever since regarded as a standard work in this branch of literature. Since that time much has been accomplished in the same field of inquiry. An attempt will be made to select a few out of the numerous facts and names which might be mentioned under this head.

About the middle of the century M. ANQUETIL DU PERRON, of France, made a voyage to the East, for the purpose of recovering the writings of ZOROASTER, or ZARATUSHT, the celebrated ancient philosopher, who is said to have reformed, or founded, the religion of the Magi. After spending a number of years in Persia and India, and applying himself to Persian literature with great zeal, he returned to his own country in 1761, and not long afterwards published a work under the title of *Zend-Avesta*, a work ascribed to ZOROASTER, and said to contain his pretended revelations. Though it seems to be generally agreed that this

work is spurious,[b] and that it was compiled long posterior to the time in which ZOROASTER lived; yet it is, on several accounts, an interesting publication, and a rich source of instruction to the student of Persian literature.[c]

About the time in which M. ANQUETIL published this work, the study of the Persian language began to receive much attention, and to become fashionable among some of the literati of Great-Britain. WARREN HASTINGS, under whose auspices, when afterwards Governor of India, oriental literature was cultivated with so much zeal, became, early in life, fond of this language, and exerted himself to diffuse a knowledge of it in his own country. Sir WILLIAM JONES, also, while yet a youth, discovered much of that enthusiastic attachment to eastern learning, in which he afterwards made such astonishing progress.[d] In 1773 he pub-

[b] Sir WILLIAM JONES, on the appearance of this work, immediately decided that it was spurious. See his *Lettre a M. A—— du P—— dans laquelle est compris l'Examen de sa traduction des livres attribues a* ZOROASTRE. 1771.

[c] *Zend-Avesta, Ouvrage de* ZOROASTRE, *&c.* 3 tom. 4to. 1771.

[d] Sir WILLIAM JONES was one of the brightest ornaments of the eighteenth century, and in some respects one of the most wonderful men that ever existed. He died in 1794, after having lived a little more than 47 years. In this short period he had acquired an extent of learning, and a variety and elegance of accomplishments, which seldom fall to the lot of an individual. There were few sciences in which he had not made considerable proficiency, and in most his knowledge was profound. His capacity for the acquisition of languages has probably never been excelled. In Greek and Roman literature his early proficiency was the subject of admiration and applause; and knowledge of whatever nature once obtained by him was ever afterwards progressive. The more elegant dialects of modern Europe, the French, the Spanish, and the Italian, he spoke and wrote with the greatest fluency and precision; and the German and Portuguese were familiar to him. At an early period of life his application to oriental literature commenced; he studied the Hebrew with ease and success, and many of the most learned Asiatics have the candour to avow that his knowledge of Arabic and Persian was as accurate and extensive as their own. He was also conversant in the Turkish idioms, and even the Chinese had attracted his notice so far as to induce him to learn the radical characters of that language, with a view perhaps to further improvements. It was to be expected, after his arrival in India, that he would eagerly embrace the opportunity of making himself master of the Sanscrit; and the

lished his *History of Nadir Shah*, and the year following his *Persian Grammar;* both of which works hold an important place among the events in oriental literature with which the age is marked. The version of the former from the original Persian into French, he undertook and accomplished from a regard to the literary reputation of his country, that it might not be carried out of England with the reflection that no person had been found in the British dominions capable of translating it. The same accomplished Briton afterwards made several important publications, connected with Persian literature, and shed much additional light on this department of eastern learning.

To Mr. Francis Gladwin, also of Great-Britain, one of the most unwearied labourers in oriental literature which the eighteenth century produced, the public is much indebted for the aid which he rendered to students of the Persian lan-

guage. Besides several important translations,

most enlightened professors of the doctrines of *Brahmah* confessed, with pride, delight, and astonishment, that his knowledge of their sacred dialect was most critically correct and profound. To a proficiency in the languages of Greece, Rome, and Asia, he added a knowledge of the philosophy of those countries, and of every thing curious or valuable that had been taught in them. The doctrines of the Academy, the Lyceum, or the Porch, were not more familiar to him than the tenets of the *Vedas*, the mysticisms of the *Sufis*, or the Religion of the Ancient Persians; and whilst, with a kindred genius, he perused with rapture the compositions of the most renowned poets of Greece, Rome, and Asia, he could turn with equal delight and knowledge to the sublime inquiries or mathematical calculations of Barrow and Newton. Besides all these acquisitions the theory of music was familiar to him; he had made himself acquainted with the modern interesting discoveries in chemistry, and his last and favourite pursuit was the study of botany, in which he made great progress, and had his life been spared, would probably have been a reformer and discoverer. His poetic productions discover a vigorous imagination and an elegant taste. His learning and talents as a lawyer were still more eminent. His abilities and integrity as a magistrate and a judge were universally applauded; and, to crown all, the purity of his life, and the fervour of his piety, as a Christian, shed a lustre upon every other accomplishment. *See a Discourse delivered before the Asiatic Society in May, 1794, by Sir John Shore, now Lord Teignmouth, prefixed to the first volume of Sir William Jones's Works.*

which alone intitle him to distinction, he published a grammar intitled the *Persian Moonshee;* and also a *Compendious Vocabulary, English and Persian.* These were presented to the public about the year 1780, and have received great and just praise.

Besides the above mentioned gentlemen, who were eminently distinguished as promoters of Persian literature, some others deserve to be respectfully noticed, as having contributed to the same object. Among these, Mr. RICHARDSON, by his *Specimens of Persian Poetry*, and other publications; Major DAVY, by his *Institutes of Timour;* Major OUSELEY, by his *Oriental Collections;* and M. MIRKHOND, by his *Historia Priorum Regum Persarum*, have rendered important aid to the students of oriental learning. To these may be added the valuable information given respecting the arts, sciences, and literature of Persia, by TAVERNIER, FRANKLIN, NIEBUHR, and various other intelligent travellers in that country.

HINDOO LITERATURE.

In this branch of oriental literature the eighteenth century presents a degree of progress highly interesting and honourable. Though it is now more than three centuries since Europeans first navigated to India; and though the inhabitants of that and the adjacent countries merit the attention of the curious more, perhaps, than any other people on the globe; yet it is but a few years since any suitable inquiries were instituted, and any satisfactory information obtained, respecting the literature and science of that important portion of the Asiatic continent.

Early in the century, the *Lettres Edifiantes et Curieuses*, enriched with communications from

missionaries in India, were published, and engaged much of the attention of the literary world. After these, M. RENAUDOT,[e] of France, and THEOPH. S. BAYER,[f] a learned German, each communicated to the public some important information concerning the literature and sciences of Hindostan; insomuch that, notwithstanding the great improvements in oriental knowledge since their time, they are still quoted frequently and with high respect. To these great orientalists, after an interval of many years, succeeded Mr. HOLWELL[g] and Mr. DOW,[h] of Great-Britain, who spent some time in the East, and who professed to give the public much new and curious information concerning the religion and sacred literature of the Hindoos. The publications of these gentlemen, however, are by no means consistent with each other, or with themselves; and although they contain, especially the works of Mr. HOLWELL, some useful and instructive matter, they are far from being considered unexceptionable authorities, by later and better informed writers.

Mr. WARREN HASTINGS, soon after receiving the appointment of Governor of Bengal, formed the design of procuring a complete code of the laws and customs of the Hindoos. With a view to the accomplishment of this design, he invited, about the year 1773, a number of Brahmans, who were learned in the Sanscrit language, from Benares, and other parts of the country, to convene in Calcutta. They complied with the invitation, and after making large collections from the most

e Anciennes Relations des Indes, et de la Chine, &c. 1718.

f Elementa Literat. Brahmanica, &c. 1732.

g See his work on the *Fasts, Festivals, and Metempsychosis of the Hindoos*, 2 vols. 8vo. 1766, and also his *Interesting Historical Events*, 2 vols. 8vo. 1766.

h Translation of FERISHTA'S *Indian History*, 3 vols. 4to. 1770.

authentic books, both ancient and modern, the whole was translated into the Persian language, from which an English version was published by Mr. NATHANIEL B. HALHED, in 1776. The publication of this work may be regarded as an important event in the history of Hindoo literature.[i]

It was long ago known, that all the science and literature possessed by the *Brahmans* were recorded in the *Sanscrit*,[j] an ancient and sacred language which was understood only by a few of the most learned among themselves, and with which the rest of mankind were wholly unacquainted. For nearly three centuries different Europeans, settled in India, sought to acquire a knowledge of this language, but without success. The Brahmans, either systematically opposed to the use of any means for gaining proselytes to their religion and habits, or suspecting that some improper use was intended to be made of the information solicited, uniformly refused to instruct any one in their sacred books. But, at length, won by the address and persuasion with which the application was presented, and being convinced that no intention hos-

i About the middle of the sixteenth century, AKBER, the sixth in descent from TAMERLANE, and a Prince of distinguished talents and virtues, ascended the throne of Hindostan. As in every part of his extensive dominions, the Hindoos formed the great body of his subjects, he laboured to acquire a perfect knowledge of their religion, sciences, laws, and institutions; that he might conduct every part of his government, particularly the administration of justice, in a manner as much accommodated as possible to their own ideas. In this undertaking he was seconded by his vizier, ABUL FAZEL, a minister whose understanding was not less enlightened than that of his master. By their assiduous researches and consultation of learned men, such information was obtained, as enabled ABUL FAZEL to publish a brief compendium of Hindoo jurisprudence in the *Ayeen Akbery*, which may be considered as the first genuine communication of its principles to persons of a different religion. About two centuries afterwards Mr. HASTINGS imitated and surpassed the example of AKBER. See ROBERTSON's India, p. 260.

j The word *Sanscrit*, according to Mr. WILKINS, is compounded of the preposition *San*, signifying *completion*, and *Skrita*, *finished*, implying that the language is exquisitely refined and polished.

tile to them or their religion was entertained by the applicants, they yielded. Mr. NATHANIEL B. HALHED, before mentioned, was the first Englishman who acquired a knowledge of the *Sanscrit*. He was soon followed in this interesting acquisition by Mr. CHARLES WILKINS, and Sir WILLIAM JONES, who were not long in giving to the public the fruits of their labours.

The first translation ever made from the sacred language of the Brahmans into English, was by Mr. WILKINS, and published in 1785. This translation was from the *Mahabarat*, an epic poem much esteemed among the Hindoos, and which, in the original, is very voluminous, consisting of more than four hundred thousand lines, of which Mr. WILKINS translated at least one third, but published only an Episode, entitled *Baghvat-Geeta*. The publication of this work excited great curiosity in the literary world, and was the occasion of increased attention to eastern learning. In 1786 a second translation from the *Sanscrit* language, by Sir WILLIAM JONES, was laid before the public. This was *Sacontala*, a dramatic poem, of great antiquity, and indicating considerable refinement, both of sentiment and manners, among those who could produce or relish it. In 1787 Mr. WILKINS again laid the republic of letters under obligations to him, by publishing a version of the *Heeto-pades*, or *Amicable Instruction*, a series of connected fables, interspersed with moral, prudential, and political maxims. These were followed by several other versions from the Sanscrit of less importance, by Mr. WILKINS, Sir WILLIAM JONES, and some anonymous hands.

In addition to the various translations which have been made from this ancient language, its structure, beauties, and antiquity, have been the subjects of much ingenious and instructive investigation, within a few years past. Among these the inquiries

of Mr. HALHED,[k] and especially of Sir WILLIAM JONES, deserve particular attention, and the highest praise.[l] To Father PAOLINO, formerly Professor of Oriental Languages in the *Propaganda* at Rome, the public are also indebted, for some useful exertions to promote the study of Sanscrit. During a residence of thirteen years in India he acquired much information concerning this language, and formed a grammar, which is said to exhibit its elements in a very clear and satisfactory manner.

The institution of the *Asiatic Society*, in Calcutta, in the year 1784, forms an important era in the history of oriental learning. The design of this association was to trace the antiquities, arts, sciences, and literature of the immense continent of Asia. It was planned and founded by Sir WILLIAM JONES, who was long its president, and certainly the most active and extensively useful member. How diligent, and unwearied the labours of this association; and how curious and valuable the results of their investigations, are generally known by means of the several volumes of *Asiatic Researches*, which have been laid before the public in the course of the last fifteen years. In these volumes, the intelligent reader will find an amount of information, on the subjects of inquiry be-

k Mr. HALHED is of opinion that the *Sanscrit* was, in ancient periods, current, not only over all India, considered in its largest extent, but over all the oriental world; and that traces of its original diffusion may still be discovered in almost every region of Asia.

l "The *Sanscrit* language, whatever be its antiquity, is of a wonderful structure; more perfect than the *Greek*, more copious than the *Latin*, and more exquisitely refined than either; yet bearing to both of them a stronger affinity, both in the roots of verbs, and in the forms of grammar, than could possibly have been produced by accident; so strong, indeed, that no philologer could examine them all, without believing them to have sprung from some common source, which, perhaps, no longer exists. There is similar reason, though not quite so forcible, for supposing that both the *Gothic* and the *Celtic*, though blended with very different idioms, had the same origin with the *Sanscrit*: and the old *Persian* might be added to the same family." See Sir WILLIAM JONES's *Third Discourse before the Asiatic Society*.

fore stated, which the whole literary world could not have furnished antecedently to their appearance. By studying the *Sanscrit* language, in which the most authentic and ancient records of the Hindoos are written; by opening communications between distant regions of the East; and by frequently penetrating into the interior parts of the country, conversing with the learned men, inspecting their monuments, and observing their habits and manners, an astonishing mass of new facts has been obtained and given, by their labours, to the public; and from the same source, much more, perhaps, of still greater value, may be expected. They have entered into paths of inquiry which, if diligently and skilfully pursued, must conduct to the richest treasures of information.

It is believed that neither the original *Vedas*,[m] which are the sacred books of the Hindoos, nor the *Shastahs*, which are commentaries upon them, have ever yet been exhibited complete in any European language. At the beginning of the eighteenth century, scarcely any thing was known of these books, out of their native country. Since that time, important extracts from them have been published, and a tolerable view of their contents presented to the world, first by Mr. Holwell, before-mentioned; afterwards, though with less faithfulness, by Mr. Dow; and at still later periods, by Sir William Jones and others.[n] The disclosures which these publications have effected, concerning the sacred literature of the Hindoos, have served equally to interest and to gratify the curiosity of the philosopher and the Christian.

[m] The books called *Vedas* are *four* in number. They are so denominated from *Veda*, a Sanscrit root, signifying *to know*.

[n] Sir William Jones tells us that the four *Vedas* are comprized in *eleven* large folio volumes, a complete copy of which was obtained by Col. Polier, of Great-Britain, who resided many years at *Delhi*, and displayed the most laudable zeal in collecting Indian curiosities.

The Astronomy and Chronology of Hindostan engaged much of the attention of oriental scholars, especially towards the close of the century under consideration. The honour is due to the French of having commenced this inquiry in a regular and scientific manner. M. LE GENTIL first brought to light, from the recesses of their temples, with any tolerable accuracy, the Astronomy of the Brahmans.[o] Since he wrote, the inquiry has been pursued more fully and ingeniously by his countryman, M. BAILLY;[p] by Sir WILLIAM JONES, who has contributed to the illustration of almost every part of oriental literature and science; and by Mr. PLAYFAIR,[q] of the University of Edinburgh; and still more recently by Mr. SAMUEL DAVIS, Mr. JOHN BENTLEY, and others, whose valuable communications appear in the *Asiatic Researches*. To these may be added the chronological inquiries of Mr. MARSDEN and Mr. PATERSON. The result of all which is the most complete proof, that the extravagant and ridiculous claims made by the Brahmans, concerning the antiquity of their nation and their sciences,[r] are wholly destitute of foundation. Indeed, the latest inquiries afford satisfactory evidence not only that no antiquity inconsistent with the Mosaic chronology can be claimed by them; but that the dates of their most ancient books and records are far more recent than even the friends of the scripture history at first supposed.

The Geography of India received much elucida-

o See *Le Voyage dans le Mers de l'Inde*, &c. *par* M. LE GENTIL. 1769.

p *Traité de l'Astronomie Indienne et Orientale.* 1787.

q See *Transactions of the Royal Society of Edinburgh*, vol. ii. p. 135.

r In all the computations of the Brahmans the most enormous extravagance appears. They suppose the period which has elapsed since the creation to be more than *seven millions* of years! In the same spirit of boundless absurdity, they make the circumference of the earth to be 500,000,000 *yojanas*, or 2,456,000,000 British miles; and the height of many mountains to be 100 *yojanas*, or 491 British miles!

tion, by the labours of learned orientalists in the course of the last age.[s] At an early period of the century JOHN HUDSON, of Great-Britain, commenced this inquiry, and pursued it with honourable success. He was followed, after an interval of many years, by M. D'ANVILLE, of France, who, in his *Antiquitè Geographique de l'Inde*, and in his *Eclaircissemens Geographiques sur la Carte de l'Inde*, gave a more satisfactory and scientific view of the subject than any who had gone before him. The next important publication on the geography of India was by Major RENNELL, who, in his *Map* of Hindostan, and in his *Memoir* accompanying the same, made a present of incomparable value to the public. And, finally, the services rendered to this branch of oriental inquiry by Sir WILLIAM JONES, Colonel WILFORD, and several other members of the *Asiatic Society* of Calcutta, demand many acknowledgments from the friends of literature and science.

Besides the contributors to Hindoo literature above named, a number of other gentlemen, who have employed themselves in promoting the same object, deserve to be respectfully mentioned. Among those the several publications of Mr. ORME, an English gentleman much conversant in Hindoo learning; those of Mr. COLEBROOKE, who has translated some Hindoo writings, and thrown considerable light on the history and literature of Hindostan; the *Sketches* relating to the letters and science of that country, successively given by FORSTER, CRAUFORD, and KINDERSLEY, all of Great-Britain; and the various works of different comparative value, by Sir JOHN SHORE, Sir WIL-

[s] Though the *Geography* of India does not strictly fall under the denomination of Hindoo *Literature;* yet, as the two subjects have generally been treated in such a manner as to stand in connection with each other, it is thought proper to introduce this paragraph here.

LIAM OUSELEY, Mr. BURROW, Mr. HUNTER, and a number more of the same country, who spent a considerable time in India, have added much to our stock of knowledge respecting that important portion of Asia. But among all the writers on this subject, few have rendered such essential service to the cause of oriental literature as the Reverend THOMAS MAURICE, a learned and ingenious English Divine, who, in his *Indian Antiquities*, has collected and laid before the public a mass of information respecting the theology, geography, jurisprudence, political establishments, and various literature of Hindostan, so rich and instructive, as will entitle him to the lasting gratitude of every friend to liberal knowledge, and genuine religion.[8]

The living languages of India have been better and more extensively understood by Europeans of the eighteenth century than ever before. This is particularly the case with the *Bengalee* language, of which grammars and dictionaries were introduced into Europe for the first time during this period, and into which a part of the Christian Scriptures were for the first time translated. The establishment of the British East-India Company, and the extensive commercial arrangements of that association, may be considered as bearing a near relation to these events, and as having exerted a favourable influence on the general interests of oriental literature.

CHINESE LITERATURE.

It is generally known that Europe is indebted to the learned men of France for almost all the knowledge of Chinese literature of which it can boast.

[8] See *Indian Antiquities; or Dissertations relative to Hindostan*, 7 vols. 8vo.

As early as the sixteenth century, a number of French Jesuits penetrated into China, and by their learning and address conciliated the favour of the government. These missionaries were followed by others, of various characters and talents, and, in fact, a succession of them was maintained, amidst many changes of reception and treatment, until after the middle of the century under consideration. The opportunities which they enjoyed for exploring the literature and science of that empire were diligently improved. Much of the information which they acquired was transmitted, at different periods, to Europe; and though the faithfulness of their narratives has sometimes been called in question, the works compiled from their letters and journals may be considered as, on the whole, the richest sources of instruction in this department of oriental inquiry.[v]

Toward the close of the seventeenth century, M. COUPLET, one of the missionaries above mentioned, translated such of the works of CONFUCIUS, the celebrated Chinese philosopher, as have been preserved. This was considered as an important service to literature, and gave him an honourable place in the list of oriental scholars. Not long afterwards a very extensive and interesting publication made its appearance in France, under the title of *Lettres Edifiantes et Curieuses des Missions Estrangeres*. The greater part of this work, which was compiled from the papers of the missionaries, and which extended to more than forty volumes, was published at an early period of the eighteenth century, and contains an ample fund of instruction concerning the literature and science of China.

v The missionaries have been perhaps too freely charged with the want of *fidelity* in their accounts of China. Later inquiries have shown that there is ground for this charge, at least in some instances. Still, however, these accounts are highly valuable, and abundantly worthy of perusal.

This was followed by the *Anciennes Relations des Indes, et de la Chine*, of M. RENAUDOT, which made an important addition to the stock of information before possessed on the subjects of which it treats. To these succeeded the great work of Father DU HALDE, entitled a *General Description of China;* and a work, under nearly the same title, by the Abbé GROSIER, both of which are considered as publications of the first class, and as containing much instructive matter relating to the learning, arts, and general condition of the wonderful country which they describe.

The singular intricacy of the Chinese language, the difficulty of acquiring a tolerable knowledge even of its elementary principles, and the restraints which have long been imposed upon all intercourse between the learned men of Europe and of China, have prevented an acquaintance with that language from becoming more frequent in the literary world. Hence, while the philosophy, astronomy, history, and other sciences of China have been deeply investigated, and some knowledge of them extensively diffused, during the last age, the characters and structure of the language of that country have been but little explored. A few attempts, however, were made, in the period under review, and not altogether without success, to communicate to the public some information on this subject. In the beginning of the century, and nearly about the same time, THEOPHILUS SIGIFRED BAYER, before mentioned, and M. FOURMONT, a learned orientalist of France, published their researches in the Chinese language. The former was one of the greatest proficients in the literature of China that the age produced; the latter also attained high eminence in the same walk of learning, and published a grammar of the Chinese language, which has received much praise. A few years after-

wards M. De Guignes published the result of his inquiries respecting this language, and gave some specimens of its characters and words.[v] He was followed by M. Pauw, a learned Prussian, who presented to the world what he called *Philosophical Researches* concerning the Chinese, which, though they indicate the strongest prejudices, yet contain some useful information.

In 1761 a very singular and curious performance made its appearance in Great-Britain. This was a translation of a Chinese novel, under the title of *Hau Kiou Chooan*, or the *Pleasing History*, in four volumes. The translation had been made a number of years before by Mr. James Wilkinson, a British merchant, who had resided for some time at Canton, where he studied the Chinese language. The editor was Dr. Thomas Percy, who accompanied the publication with extensive and learned notes, which have a tendency not only to illustrate the composition immediately connected with them, but also to throw new light on the character of Chinese literature in general.[w]

In 1776 was published the first volume of an extensive work on the literature, sciences, and history of China, compiled from papers communicated by French missionaries in that country. Two Chinese young men, after residing several years in France, and receiving a liberal education, returned to their own country in 1765. They carried with them a number of questions, from some learned societies of France, particularly relating to the literary and philosophical condition of China, and

v See *Memoirs of the Royal Academy of Inscriptions and Belles Lettres*, especially vols. xxx. xxxvi. and xxxviii.

w It is said that the Reverend Dr. Blair, the celebrated teacher of Rhetoric in Edinburgh, once remarked in conversation, that the *Pleasing History* contained a more authentic and interesting account of the internal state of China, than all the other publications on that subject that he had ever seen.

to which answers were requested from themselves and the missionaries. The communications made in consequence of these queries were published in the work above mentioned. In these communications, and especially in those which relate to the Chinese language, Fathers AMIOT and CIBOT make the most respectable figure, and have given the most valuable information.[x] Besides these, M. LE GENTIL, M. SONNERAT, and M. LANGLES, of France; and Sir WILLIAM JONES, Sir GEORGE STAUNTON, and others, of Great-Britain, have given the public some instructive accounts relating to the letters, arts, and philosophy of the Chinese empire.

The last conspicuous labourer in this field of inquiry is the Reverend Dr. HAGAR, a learned German, who resided a number of years in the east, and gained an uncommon acquaintance with the Chinese language. His knowledge enabled him to present the public with a work on this language, in which he entered into a more full and satisfactory explanation of its elementary characters than had been before attempted. This is the first systematic work that has been published in Europe on Chinese writing and reading, and evinces great industry and apparent skill in the author.[y]

It is worthy of remark, that all the investigations in oriental literature by which the last age was distinguished, furnished new and very im-

x See *Memoires Concernant l'Histoire, le Sciences, les Arts*, &c. extending to a number of volumes in 4to.

y See *An Explanation of the Elementary Characters of the Chinese Language, with an Analysis of their Ancient Symbols and Hieroglyphics*, &c. by JOSEPH HAGAR, D. D. Though this work was not actually published till the beginning of January, 1801; yet as both the acquisition of Dr. HAGAR's Chinese learning, and the composition of this work belong to the eighteenth century, they have a place assigned them within that period.

portant arguments in favour of the truth of Revelation. Early in the century which is the subject of this retrospect, it was supposed, and some zealous adversaries of revealed religion diligently propagated the idea, that inquiries into the chronology and other sciences of several eastern nations, strongly opposed, and were in a fair way wholly to destroy the credibility of the Mosaic history. Assertions of this kind were, in particular, made with great confidence, by certain sceptical philosophers of France, who were always ready to believe any thing which might release them from the obligation to believe in Christianity. Later and more accurate investigations, however, have shown that this opinion is totally erroneous, and that the more deeply we penetrate into the literature and science of the east, the more striking evidence we find in favour of the scripture account of the creation and age of the world, and also in support of several important doctrines of the Gospel.

The light which modern oriental inquiries have thrown on the Mosaic system of chronology was before mentioned. Those who undertook to assail the sacred history by means of arguments drawn from the high assumptions of the Brahmans, and of the literati of other eastern nations, have been completely refuted; indeed the annals of science scarcely furnish an instance of hostile invaders being more entirely defeated, and their arms turned more directly against themselves. It has been proved by indisputable authorities, " that the personages who are said to have flourished so many thousand years in the earliest ages, were of celestial, not terrestrial origin; that their empire was the empire of imagination in the skies, not of real power on this globe of earth; that the day and year of Brahmah, and the day and year of mortals,

are of a nature widely different; that the whole jargon of the *Yugs*; or grand periods, and, consequently, all those presumptuous assertions of the Brahmans, relative to the earth's antiquity, have no foundation but in the great solar and lunar cycles, or planetary revolutions."[z]

Very rich and curious information has also been derived from late oriental inquiries, which serves at once to illustrate and confirm the scripture doctrine of the *Trinity*. One of the most learned and accurate orientalists of the age considers the following facts as decisively established by recent investigations, viz. "First, that in the *Sephiroth*, or three superior splendours of the ancient Hebrews, may be discovered the three hypostases of the Christian Trinity; secondly, that this doctrine flourished through nearly all the empire of Asia, a thousand years before PLATO was born; and, thirdly, that the grand cavern-pagoda of Elephanta, the oldest and most magnificent temple in the world, is neither more nor less than a superb temple to a Tri-une God." If the doctrine of the Trinity be contained in the Old Testament scriptures, as it certainly is; and if some knowledge of this stupendous mystery of our holy religion were conveyed to the faithful in the earliest times, which we may safely presume to have been the case; then it was natural that some ideas of this doctrine, more or less distinct, and connected with a greater or less portion of fable, should be found, as the result of tradition, in most nations of the world. That this is really the case, the learned have long had increasing reason to believe. But the inquiries of the eighteenth century, and especially those instituted in the east, have rendered this truth more indisputably apparent than ever, and have thus

[z] See MAURICE's *Indian Antiquities*, and his *History of Hindostan*.

furnished new evidence in favour of those precious doctrines which are connected with it, and which are fully brought to light in the gospel.

Similar references to the *Fall* of man, and the *Deluge*, have also been found by discoveries in the east, as well as allusions of the most remarkable kind to the mission and character of the MESSIAH; all tending to support the idea of a common faith having descended by tradition from the family of NOAH to their posterity; and thus to furnish a new, and, considered in all its relations, a most powerful argument in favour of the authenticity of the sacred history.

This tendency of literary and scientific discoveries in the east, to confirm the sacred history, has been ably displayed by Sir WILLIAM JONES, and other contemporary writers whose inquiries appear in the *Asiatic Researches;* but by none so extensively, and in a manner so convincing and popular, as the Reverend Mr. MAURICE, of Great-Britain, who, in his *Indian Antiquities*, and his *History of Hindostan*, has presented a view of the subject, so incontrovertible and satisfactory as to place him among the most meritorious defenders of Revelation which modern times have produced.

The illustration of sacred scripture by means of circumstances incidentally mentioned in books of eastern travels, is a most interesting and instructive field of inquiry, both to the philosopher and the Christian. Services of this nature, more rich and valuable than ever before, have been rendered to biblical criticism, during the eighteenth century. One of the most useful writers on this subject which the age produced, was the Reverend Mr. HARMER, of Great-Britain. He published an extensive and learned work, in which, by means of information derived from voyagers and travellers in the east, he placed many passages of scripture

in a light altogether new; ascertained the meaning of others, not discoverable by the methods commonly used by interpreters; and proposed many probable conjectures highly instructive to the sacred critic.[a] Several other writers of considerable note have also presented the public with useful observations on the same subject.

CHAPTER XV.

MODERN LANGUAGES.

IN this chapter it will only be attempted to present some brief and general remarks on the improvements which have been received during the last age by the more cultivated living languages of Europe. To propose a discussion of greater extent would be to engage in an inquiry altogether incommensurate with the design and the limits of the present sketch.

There is no living language in Europe which can boast of greater antiquity than five or six centuries. Derived from various sources, and rising from rude beginnings, to a regular and consistent character, they have been gradually becoming more rich, copious, and polished during the greater part of this time. To trace the causes and the means of these improvements through their interrupted and devious course, is here neither necessary nor possible. It would be a task of great magnitude and difficulty to the most accomplished philologist.

[a] See *Observations on divers Passages of Scripture*, &c. 4 vols. 8vo. 1776 and 1787.

The portion of these improvements which belong to the eighteenth century may, in general, be pronounced to be very great, and to demand particular consideration in tracing the revolutions and the progress of this period. They deserve the more attention on account of their connection not only with the literary and scientific, but also with the social and political interests of the age.

The *increased intercourse* of men, during the last century, led to important revolutions and improvements in the living languages. By means of this intercourse the learned of different nations have become more acquainted with the idioms and beauties of many other languages than their own; and this acquaintance has caused the respective treasures of each language to become, in a degree, the common property of all. Hence the more cultivated tongues of Europe have been very perceptibly enriched, within a few years, by the adoption of many significant words and phrases from each other, as well as from those which are, in general, less worthy of imitation.

The effects of this extended intercourse have been aided by the great number of *translations*, by which modern times are peculiarly distinguished. There never was an age in which the most esteemed literary productions of different nations were so extensively circulated, or exhibited to the world in so many different languages. The unexampled prevalence of this practice has rendered the characteristic peculiarities of various tongues better known, and produced the insensible incorporation of them with others. This is the great source of those "imported" words and phrases which have sometimes received the approbation of philologists, but of which they have, perhaps, more frequently and justly complained.

The numerous *discoveries* in science and the arts, during the period under review, also led to the introduction and familiar use of many terms of which the learned of the preceding age were entirely ignorant. Almost the whole dialect of philosophy, both natural and moral, has become new within the period in question. How rich and valuable the stores which language has received from this source, can only be adequately conceived by those who are able to take a distinct view of the improvements in philosophy, and all the arts of life, in the course of the last hundred years.

To the above considcrations may be added the numerous instances of the new coinage of words, by popular writers, arising either from necessity, from caprice, from vanity, from affectatior, or other causes. Some of these new emissions, however they may fail on the score of authority, must be considered, on the whole, as useful additions to modern languages. From this source the augmentation of our literary treasures is constant; and if due vigilance be exercised to guard against capricious and wanton innovation, substantial advantages to the interests of language may thence be expected to flow.

The influence of all these considerations, taken together, has introduced an amount of modification and improvements into modern languages, within the last century, beyond all doubt, greater than were ever introduced in any preceding period of equal extent. That large additions have been made to the number of words, no one can for a moment hesitate to admit. But this is by no means all that may be asserted.

The *style* of composition also, in most of the living languages, has been greatly improved since the commencement of the eighteenth century. The style of the best writers, at the present day,

though perhaps inferior to the exquisite refinements produced by Grecian and Roman taste, is essentially superior to that which was employed by the most correct models of the preceding age. Modern languages now exhibit more grammatical accuracy, more precision, energy, and polish, and a more graceful, luminous, and philosophic construction, than they could boast at that period. We have thrown off "the useless load of words which incumbered our predecessors," and discarded their circuitous and tedious routes to a meaning, which formerly disgusted the literary traveller. In short, the first class of writers of the eighteenth century display a smoothness and force of manner, a taste in the selection of words, and a scientific perspicuity of arrangement, which are no where to be found so admirably united in those who went before them.

These remarks do not apply, with unqualified propriety, to all the living languages of Europe. The Italian language, it is believed, was considerably before any of the rest, in attaining its highest point of refinement. This was chiefly accomplished before the commencement of the last age, since which time it is not known that any radical or important improvements have taken place in that language. The French language also, if the writer does not mistake, had received by far the greater part of that cultivation which it now exhibits, before the period of this retrospect. Still, however, it is supposed that both these languages, and especially the latter, may with truth be represented as partaking in some degree of the large mass of improvement which has accrued to many others within the last age.

But not to content ourselves with these general remarks, let us descend to the particular consideration of some of those living European lan-

guages, which may be supposed to have received the greatest number of improvements during the last century, and to be most worthy of notice.[b]

ENGLISH LANGUAGE.

The English Language has received, during this period, a large portion of the improvements which have been mentioned. From the middle of the sixteenth to the commencement of the eighteenth century, English style had been in a regular course of refinement and general melioration. The great British Lexicographer, Dr. JOHNSON, tells us that the writings of Sir PHILIP SIDNEY, who died in 1585, furnish a boundary beyond which he made few excursions in search of the "wells of English undefiled."[c] After SIDNEY, the important successive improvements conferred on our language by SHAKSPEARE, HOOKER, MILTON, CLARENDON, TEMPLE, TILLOTSON, SPRAT, DRYDEN, and LOCKE, are well known, and have been frequently the subjects of eulogium by the literary historian. But still these writers left many defects to be supplied. Their respective styles, though various, were, for the most part, formal, feeble, circuitous, abounding with excrescences, and cumbrous parts, and in many instances perplexed, inaccurate, and inelegant to a very high degree. These charges, indeed, do not equally belong to all that have been

b In the following sections the intelligent reader will observe that the Italian, the Spanish, the Dutch, and several other important dialects of modern Europe, are omitted. The reason for this omission is the best in the world. It is because the author knows so little of those languages, and is so entirely ignorant of the details of improvement which they have received, that he cannot undertake to state them. It is presumed, however, that the improvements which have lately taken place in most of the cultivated living languages, respectively, agree in so many respects, that the exhibition of those which belong to one may be considered as applying in a considerable degree to the rest.

c Preface to the *Dictionary of the English Language.*

mentioned; for few would admit that SHAKSPEARE, MILTON, and DRYDEN were feeble writers. But the general application of the character above stated will scarcely be denied. And though it may be allowed, that the most of those writers were free from some faults which have since become fashionable, still they were chargeable with others equally great, and more inconsistent with the philosophy of language.

The eighteenth century opened with better prospects. The writings of ADDISON formed an important era in English literature. In truth, this celebrated author attained, at once, a style of composition so much superior to that of any who had gone before him, that none can peruse the monuments which he has left us of his taste without admiration. He was less faulty in multiplying synonymous words than his predecessors. He displayed also more judgment in the choice, and more precision in the use of terms. The forced metaphor, the dragging clause, the harsh cadence, and the abrupt close, were carefully excluded from his pages. He exhibited, in an eminent degree, that correctness, perspicuity, ease, and harmony, in which preceding writers had been so remarkably deficient. He was the first English prose writer who discovered any thing like distinguished taste in the choice and management of figures. "Pure, without scrupulosity, and correct, without apparent elaboration; equally free from studied amplitude, and affected brevity; familiar, but not coarse; and elegant, but not ostentatious,"[d] he deserves to be ranked among the most meritorious reformers of our language.

While ADDISON was employed in communicating to English style a new degree of ease and

[d] JOHNSON.

polish, SWIFT was successfully engaged in cultivating it, with a particular view to its purity and precision. Endowed with a mind among the most vigorous of the age in which he lived, and directing particular attention to the subject of language, he attained distinguished excellence as a writer. He was the first who attempted to express his meaning without "subsidiary words and corroborating phrases." He was still more sparing in the use of synonymes than ADDISON; and without being very solicitous about the structure or harmony of his periods, he attended particularly to the force of individual words. Less figurative and adorned than ADDISON, he learned more successfully than he, to avoid the diffuse and feeble manner which had so generally characterized English composition. Mr. HUME supposes that the first elegant prose in our language was written by SWIFT.

To Mr. POPE, also, English style is much indebted. "He cultivated the beauties of language with so much diligence and art, that he has left, in his *Homer*, a treasure of poetical elegances to posterity. His version may be said to have tuned his native tongue; for since its appearance, no writer, however deficient in other powers, has wanted *melody*."[c] The style of English versification attained in his hands that sweetness of harmony, that grace of embellishment, that *curiosa felicitas*, which have never since been surpassed. There is scarcely a happy combination of words, or a phrase musical and captivating, which is not to be found in his writings.

The improvements introduced by these benefactors to English literature were pursued and extended by several contemporary and succeeding

[c] JOHNSON'S *Life of Pope.*

writers. Among the first of these SHAFTESBURY and BOLINGBROKE hold an honourable place.[f] The style of the former, though excessively and elaborately delicate, and displaying a continual fondness for artificial arrangement, and affected stateliness, is still rich and musical, and contributed not a little to improve the public taste. The writings of the latter, exhibiting the ease and elegance of ADDISON with more vigour, were also useful in promoting the prevalence of correct and elegant composition. Neither of them, however, can be said to have introduced a fashion of writing wholly new, or to have formed a remarkable era in the history of the English language. The same may be said of MIDDLETON, FIELDING, SHERLOCK, SMOLLET, HAWKESWORTH, GOLDSMITH, MELMOTH, and several others. With various talents and modes of expression, and with different degrees of literary merit, they all contributed something to the cultivation of style, and each displayed some new and peculiar excellence, without producing, singly, any thing like a revolution in manner.

The change introduced into English style by Dr. JOHNSON, deserves particular notice. This great philologist, while he was ambitious to convey important moral and literary truth, laboured also to "refine the language of his country to grammatical purity, and to clear it from colloquial barbarisms, licentious idioms, and irregular combinations; to add something to the elegance of its construction, and something to the harmony of its cadence."[g] Nor did he labour in vain. He effected important

[f] It will readily occur to the reader that nothing is meant to be spoken of here but the *style* of these writers. The tendency of their publications, in a moral and religious view, will be particularly noticed in a subsequent part of this work.

[g] *Rambler*, vol. iv. No. 208.

improvements in English style. He improved the form of its phrases, the construction of its sentences, and the precision and appropriateness of its diction. He introduced a strength and solidity of expression; a dignity, not to say pomp of manner, which, though becoming in him, can scarcely be imitated without danger; and in the happy art of exhibiting a number of adjunct ideas in the same sentence with perspicuity and vigour, he has rarely if ever been equalled. He enriched the language, also, with many words, adopted from the Greek and Latin. In this, indeed, he has been censured by some, and perhaps with justice, as having gone too far, and resorted to foreign aid without necessity. But though it be admitted that he has, in some instances, transgressed his own rules, yet he certainly added largely to the stores of English diction, and may, on the whole, be considered one of the greatest benefactors to English literature that the age produced.

But signal as the improvements in style which Dr. Johnson either introduced, or contributed to promote, yet it cannot be denied that, in some respects, he gave countenance to a false taste in writing. He brought into vogue, a style, which is, perhaps, too far removed from the ease and simplicity of colloquial discourse; which too much abounds in artificial embellishment, formal monotonous structure, and elaborated figure; and which, when employed on subjects less dignified than those of which he usually treated, is extremely faulty. His manner, perverted and extravagantly extended, has led many fashionable writers to suppose that a continual glare of metaphor, an unceasing effort to exhibit epigrammatic point, and an undistinguishing stateliness of march, were among the superior beauties of composition. These faults, together with the short sentences, so much

affected within a few years past, by several popular writers, are among the fantastic errors, which a spirit of misguided imitation, or a perverted taste, have brought too much into use.

It would be unpardonable, in this sketch, not to take notice of several other writers, who, toward the close of the century in question, made a distinguished figure in the annals of English style. Among these, perhaps, the most worthy of our attention, are the author of the letters of JUNIUS, Mr. BURKE, Sir JOSHUA REYNOLDS, and Bishop WATSON. The remarkable characteristics, and the peculiar excellence of the style of JUNIUS are well known. Mr. BURKE, though sometimes very inaccurate, yet furnished many specimens of splendid and forcible eloquence, which would have done honour to the brightest era of Grecian or Roman taste. While the writings of Sir JOSHUA REYNOLDS[b] and Bishop WATSON, more chaste and correct, and scarcely inferior in force and other beauties, will long be read as admirable models of English composition.

To the above names might be added those of Dr. BEATTIE, Dr. BLAIR, and several others, both in North and South Britain, either still living or lately deceased, who have contributed to form and extend a taste for elegant writing. But to these it would be impossible to do justice without engaging in a discussion too minute for the limits of the present sketch.

In English *historical* style, HUME and ROBERTSON are, unquestionably, the best models. The former excels in ease, spirit, and interest; the latter in purity, dignity, strength, and elegance. The

b In this remark, the charge against the memory of Sir J. REYNOLDS, as having been assisted by Mr. BURKE, in the composition of those noble discourses which he delivered before the Royal Academy, is taken for granted to be false, or, at least, not true to the extent which has been stated.

great improvement which they have effected in this kind of composition, since the time of CLARENDON; and of RAPIN, must be obvious to the most careless reader. Mr. GIBBON has attempted to carry the ornaments of this kind of style much higher than his predecessors had ventured. But it seems to be the opinion of most impartial judges, that many of his favourite ornaments are meretricious; that his loftiness is often nothing more than bombast and affectation; that what he imagined to be beautiful splendour of diction, is frequently disgusting glare; that in aiming at a dignity far above the ease of discourse, he becomes so "fantastically infolded" as to be obscure, if not unintelligible. His manner has indeed many beauties, but it has also multiplied blemishes; and the reader of taste will probably allow that English style has rather suffered deterioration than gained improvements by his literary labours.

The sum of the matter, then, seems to be this; that English style, since the commencement of the eighteenth century, has become more rich and copious, by a large accession of words; that it has gained a more "lofty part," and "moves with a more firm and vigorous step;" that the structure of sentences, in our best authors, is more compressed, accurate, and philosophical; that "the connective particles are used with more attention to their genuine meaning;" and, in general, that the scientific spirit of the age has extended itself remarkably, in giving to our language that precision, spirit, force, polish, and chaste ornament, which are so frequently met with at the present day.[i]

i There are some good remarks on English style in the *Inquirer, a Series of Essays*, by WILLIAM GODWIN. Though no friend to human happiness can recommend the moral or religious principles of this writer, which are pre-eminently fitted to delude, corrupt and destroy; yet he is himself master of a vigorous style, and his judgment on a question of literary taste is entitled to respect.

The English language is, indeed, capable of much greater improvement, and will, probably, receive more than it has yet attained. Improprieties, and violations of analogy are to be found, in considerable number, in the best writers; and many of those words and phrases which modern innovators have introduced, a better taste will, no doubt, indignantly dismiss. If more than forty years ago a celebrated writer could complain, with justice, of numerous departures from the purity of English idiom, and deviations toward the "*Gallick* structure and phraseology," it is presumed that, since that time, the complaint has become better founded. Mr. HUME, and, in a higher degree, Mr. GIBBON, to say nothing of a multitude of less conspicuous writers, are chargeable with many deviations from the purity of our language, and the introduction of many phrases by no means consistent with its analogy. Still, however, it must be admitted, that these faults are accompanied with real and numerous improvements; that the style of our best authors is not only incomparably superior to that which prevailed antecedently to the time of ADDISON, but also, in some respects, superior to his best specimens; and that excellences of style have lately become more common and popular than at any former period; insomuch, that we now often find in an occasional pamphlet, or in the pages of a gazette, a perspicuity, energy, and elegance of diction, for which we might have looked in vain among the best models of the seventeenth century.

Besides the improvements which have taken place in English style, during the last age, the language has undergone several minuter changes, which are not unworthy of being just mentioned. The *Orthography* of our tongue has received considerable modifications. Superfluous letters have been discarded from many words. And, in the

use of capitals, great alterations have been introduced. But besides the changes in orthography which have been generally received, and are now established, several proposals were made, in the course of the century we are considering, for a more radical reform. Of this reform, which consisted in an attempt to render the spelling more conformable to the *rules* of pronunciation, Mr. ELPHINSTONE, of Great-Britain, and Dr. FRANKLIN and Mr. NOAH WEBSTER, of our own country, among others, have appeared as the most conspicuous projectors and patrons, since the time of Bishop WILKINS. The successive proposals and exertions of these gentlemen, to attain this favourite end, were all unsuccessful. The great majority of philologists seem to have considered them as useless in themselves, calculated to injure the analogy of the language, completely subversive of etymological principles, and productive of numerous inconveniences and evils.

The attention lately paid to English *Orthoepy*, may be considered as peculiar to the eighteenth century. The pronunciation of our language was, a few years ago, in a very crude, loose, and neglected state. This circumstance attracted the notice of several ingenious and accurate men, who perceiving the importance of some regular and consistent plan of pronouncing, engaged in a system of reform on this subject; and by exhibiting the anomalies of pronunciation, and pointing out its analogies, were enabled to lay down rules, which have proved extensively useful. Among those writers who deserve high praise on this subject, Mr. ELPHINSTONE, before mentioned, is entitled to the first place. At the commencement of his in-

j This word, like the art which it is designed to express, is of recent formation. It is derived from the Greek words ὀρθός, *rectus*, and ἔπος, *verbum*, and signifies the *art of pronouncing well.*

quiries, he found *Orthoepy* in a most chaotic condition. In his *Principles of the English Language*, he did much towards reducing the chaos to order, and laid down the principles of a just and regular pronunciation. But by treating the subject in a way not calculated to be popular; and by endeavouring to make an extravagant and ill-judged reform in the orthography of the language, he lost that portion of credit with the public, to which his merit entitled him; and his labours were less useful than they ought to have been. After Mr. ELPHINSTONE, Dr. KENRICK appeared as a teacher and reformer in pronunciation; and his *Rhetorical Dictionary* may be regarded as a very respectable and useful contribution for this purpose. Next to him came Mr. SHERIDAN, who carried his improvements on this subject still further; and in his *Dictionary*, gave to the public a standard of pronunciation much superior to any thing that had been offered by his predecessors. He was succeeded by Mr. NARES, who, in his *Elements of Orthoepy*, treated the subject in a new and ingenious manner, and introduced yet greater improvements. The last distinguished writer on this branch of English Grammar, is Mr. WALKER.[k] This gentleman, in his *Critical and Pronouncing Dictionary*, seems to have united the different excellences of those who went before him; to have avoided many of their mistakes; to have supplied a large portion of their defects; and, on the whole, to have furnished the republic of English literature with the best standard of pronunciation which the language affords.[l]

[k] Since the publication of WALKER's work, a pronouncing dictionary has been presented to the public by Mr. JONES, also of Great-Britain. It is believed that the best judges consider this work as containing little if any real improvement on that of WALKER.

[l] See preface to WALKER's *Critical and Pronouncing Dictionary*.

Notwithstanding the splendid excellences of composition displayed in the writings of ADDISON, POPE, and SWIFT, all the treatises on *English Grammar* in use when they wrote were crude and unsatisfactory. The principles of the *Greek* and *Latin* tongues were transferred to the English, and grammatical works formed accordingly. On this plan every writer upon English grammar had proceeded anterior to the time of Dr. LOWTH. The number and value of his improvements are generally known to grammarians. Since his time the labours of PRIESTLEY, SHERIDAN, ASH, TOOKE, PICKBURN, WALKER, WEBSTER, MURRAY, and others, have produced additional light and improvement in the grammar of our language. The best English grammar now extant is that by the last named writer, Mr. LINDLEY MURRAY, who, by this publication, and by several others connected with it, and designed as auxiliaries to its principal purpose, has become entitled to the gratitude of every friend to English literature, and to true virtue.[m]

At the beginning of the century in question, there was no *Dictionary* of the English language which deserved the name. Not long afterwards there appeared one superior to all that had gone before it, by Mr. BAILEY. This work, though possessing considerable merit, especially in the *etymological* department, was still defective in so many respects, that it was by no means a safe or

[m] Mr. LINDLEY MURRAY is a native of Pennsylvania, but resided during the early part of his life chiefly in the city of New-York. Having removed to Great-Britain, for the benefit of his health, he has employed his leisure, for a number of years, in improving the grammar of his native tongue, and in making such other publications as have a tendency to form the minds of youth to a love of literature and of virtue. The excellence of all his literary labours, and the charitable appropriation of the product of his works, to which he has long rigidly adhered, have secured for him a station in the public esteem too high to render eulogium necessary in this place.

adequate guide. BAILEY was succeeded by several others of inferior note, who laboured as English lexicographers, but they did little worthy of being recorded. In this state of things, Dr. SAMUEL JOHNSON, a distinguished philologist of Great-Britain, undertook to compile a grand national dictionary, a task to which learned academies had generally been considered alone equal. His plan of the work was laid before the public in 1747, and in 1755 this wonderful production of the labour of an individual issued from the press. It must be acknowledged, that the *Dictionary of the English Language*, notwithstanding all its splendid merits, is an imperfect work. Its illustrious compiler was, in a great measure, ignorant of the *philosophy of language*, which at that period was little understood by the most profound grammarians. His *etymological* investigations are too often superficial and unsatisfactory; and his numerous omissions of words unquestionably belonging to the language,[n] indicate either carelessness or haste in the execution of his task. Added to these faults, his style of definition has been criticised as "loose and pedantic;" he has been accused of a needless and improper subdivision of meanings; and his frequent indulgence of a taste for "neoteric importation from the Latin," is considered, by many, as a departure from his own principles, by means of which the purity of our tongue has suffered injurious mixtures and adulterations. Still, however, viewing the work of JOHNSON as the production of one man; recollecting how small a portion of his life it employed; considering its immense superiority to every thing of a similar kind

[n] Dr. JOHNSON, in his *Dictionary*, has collected about 48,000 words. The Reverend H. CROFT asserts that he has made a list of 11,000 more, which he proposes to introduce into a new work. See WENDEBORN's *View of England*, &c.

which had gone before it; and taking into the account also, that it was written "with little assistance of the learned, and without any patronage of the great; not in the soft obscurities of retirement, or under the shelter of academic bowers, but amidst inconvenience and distraction, in sickness and in sorrow," it must be regarded as a wonderful monument of philological taste, erudition, and labour.

The English dictionaries which have been given to the public since that of Dr. JOHNSON, are numerous. They have, in general, however, contented themselves with servilely copying that great lexicographer, and have made few important additions to his labours. To this general character Dr. ASH is an exception: considering his dictionary as a collection of all kinds of words, scientific, technical, obsolete, colloquial, decent, or otherwise, it is doubtless the most complete extant; and so far as the mere *number* of words is an excellence, his work must be pronounced much superior to that of JOHNSON. It may fairly be questioned, however, whether such an indiscriminate admission of words as Dr. ASH has thought proper to adopt, be not more injurious than useful. The dictionaries of KENRICK, SHERIDAN, WALKER, with a comparative view of their respective merits, were before noticed. But as these were designed rather to promote English *Orthoepy* than the general interests of our language, the further consideration of them will not be attempted in this place.

It is worthy of remark, that the eighteenth century has produced a great *extension* of the knowledge and use of the English language. Within the last forty or fifty years this language has been gradually becoming more known among the learned of other countries, and its best models of composition more studied. Mr. POPE is said

to have lamented that his writings were not likely to be much read, excepting by the inhabitants of one small Island. Had he lived till the present day he would have seen better prospects opening to his literary ambition. To say nothing of the immense continent of North-America, where the productions of that great Poet will probably long be perused by many millions; and to place also out of the account, the extensive foreign dependences of Great-Britain, where English literature is likely, in time, to flourish; it is an undoubted fact, that the language in which he wrote is incomparably more read and spoken on the continent of Europe, since his day, than ever before.

FRENCH LANGUAGE.

The French language, during the last century, received modifications and improvements in a considerable degree similar to those which have already been noticed as belonging to the English. It was before remarked that this language was some time before the English in the progress of improvement. The reign of Louis XIV. has been commonly called the *golden age* of French literature, and the period of perfection in French style. It is probable that this opinion is rather better founded than that which assigns the reign of Queen Anne as furnishing the highest grade of refinement in English composition. The publication of the famous *Dictionnaire de l'Academie Française*, a great and splendid work in its day, formed an important æra in the history of the French language. The grand object of the Association which compiled this Dictionary, and presented it to the world, was to improve and fix their language; and there can be no

doubt that the publication was, in a considerable degree, subservient to these purposes.

But to expect a living language to be absolutely stationary, is to expect that which borders on the region of impossibility. Accordingly, since the completion of the great national dictionary just mentioned, the French language has gained large accessions of words and phrases, and has received various kinds of melioration. The work of the Academy has long been superseded by the private and better Dictionary of M. RICHELET, which has been honoured with high and general praise. But even this latter is far from embracing the numerous additional words with which learned philologists of that country have endowed their language.

The large work of M. COURT DE GEBELIN, on language, published a few years ago, contains an extensive and learned investigation of French *Etymology*, which has thrown new light on the structure and genius of that language. Indeed, within the last thirty years of the century under consideration, several writers of high reputation, but of whom the author has too little knowledge to speak distinctly, have undertaken, with considerable success, to exhibit the beauties and defects of their native tongue, and to point out the means for its further refinement.

The list of those writers who contributed, in the course of the last century, to enrich and polish the French language, is too large to be given at length, even if the information requisite for this purpose were possessed. Out of the great number, FONTENELLE, VOLTAIRE, ROUSSEAU, and BUFFON, deserve to be selected, as standing in the first rank. Since the date of their writings it may be doubted whether the language has gained any real refinements. If an air of metaphysical abstraction, and antithetic point, be more prevalent among

some late popular writers of that country than formerly, it is believed no substantial improvements have been made in the vigour, the polish, the precision, and the chaste ornaments of French style.

At the commencement of the eighteenth century, it is probable that there was no living language so generally understood, and so correctly spoken, among the learned of all civilized countries, as the French. It was then spoken as the most polite medium of intercourse at several of the courts of Europe, and the acquisition of it considered as an important part of liberal education. Since that time the knowledge and use of this language have greatly extended. It has, in fact, almost become, what the Latin once was, an universal language. Perhaps it may be asserted that a larger portion of mankind, at the present day, understand and speak this language, than were ever before known to be acquainted with a living tongue.[o]

GERMAN LANGUAGE.

The German Language, in the course of this century, has been greatly enriched and refined. Until the middle of the century it remained in a rude and unpolished state. Such of the learned

[o] Some remarks on modern improvements in the *Spanish* language, would naturally follow this section, if the author were sufficiently acquainted with the nature and amount of these improvements to make even general remarks on them. It may not be improper, however, to mention, that the *Royal Spanish Academy of Madrid*, founded in 1713, was instituted for the express purpose of cultivating and improving the national language. With this view, after spending many years in the requisite preliminary investigations; after devoting much attention to the selection of such words and phrases as were used by the best writers, and noting those which were either low, corrupt or obsolete, that learned Society published, in 1783, the *Diccionario de la Lengua Castellana*; a work, which, though defective in *etymological* inquiries, and in several other respects, is yet by far the best extant.

men of that country as had then devoted themselves to philology, chiefly studied the ancient languages, to the neglect of their own. Most of their scientific publications then made were in Latin. Since that time more has been done to promote the interests of German literature, and especially to cultivate the German language, than had been done for several centuries before. One of the first steps in this course of cultivation was the publication of the *Messiah*, by KLOPSTOCK. When that celebrated poem made its appearance, the many new combinations of words, and the various licences of language with which it abounded, excited much complaint among the countrymen of the author; but these innovations soon became familiar, gradually gained admirers, and at no great distance of time were generally adopted, by the best German writers. KLOPSTOCK was particularly successful in improving the versification of his native language. He introduced a new style of poetry into his country; and has been generally followed as one of the best authorities in polite literature. This celebrated poet has also done much to improve the *orthography* of his language. He first suggested, and by his own example enforced, the propriety and necessity of reform in this department of the German tongue. His proposals, indeed, were not adopted in their full extent; but they led others to direct their attention towards this object; and to him therefore is due a large share of the credit arising from the improvements which have since taken place.[p]

Next to the radical reform introduced by KLOPSTOCK, the writings of many others of the literati of that country have had a considerable influence in promoting the same object. Among these the

[p] *Monthly Magazine*, London, vol. v. p. 280.

poems of HALLER; the *Idylls*, and *Death of Abel*, of GESSNER; the fables and moral writings of GELLERT; the numerous and diversified productions of WIELAND; and the various works of LESSING, HERDER, GOETHE, SCHILLER, Voss, and many others, have all contributed a share, to render a language once but little esteemed in Europe, one of the most copious, energetic, and rich of modern tongues.

But among late German writers no individual is entitled to more honourable mention than J. C. ADELUNG, a celebrated philologist of that country. His labours in studying and improving his native language have been extensive, persevering, and successful to a degree almost without precedent. He has produced works, in this department of literature, with which the productions of learned academies, and royal societies, can scarcely be brought into competition. His *Grammar of the German Language*[q] is an elaborate and systematic work, unquestionably superior to all preceding works of a similar kind, and has contributed much towards forming and regulating the language of which it treats. But his greatest work is a *Complete Dictionary of the High German Language*.[r] In the composition of this extraordinary work he spent the greatest part of thirty years, and it is pronounced, by good judges, to come nearer to the idea of a perfect dictionary than any other effort of human diligence hitherto published. It contains a larger number of words than any other extant; the definitions are singularly lucid and satisfactory; every word is scientifically arranged, with respect to its literal and metaphorical signification; the etymologies of words are pursued with an acuteness and a skill which render them highly instruc-

q In two volumes large octavo.
r It consists of five volumes large quarto.

tive; and the author displays an acquaintance with the history of his language, and the peculiar merits of its best authors, which eminently qualified him for the task which he undertook to execute.

This grammar and dictionary, we are told, have been useful, beyond any other publications, in correcting the orthography, in exploring the etymology, and in regulating the syntax of the German language. The incessant efforts of ADELUNG have also served to animate and guide the exertions of *his* countrymen in pursuit of the same object. Since he wrote, philological inquiries have acquired an ascendency and a prevalence in that empire which they never before possessed. Grammars, dictionaries, and critical essays, have unusually abounded. Questions for elucidating and improving the language have been published by academies and literary associations in every part of the country, and have occupied much of the attention of learned men. And, finally, their popular writers, especially their poets and dramatists, are continually adding to the stores of the language, new words, and combinations of terms, which, though in some cases they have been considered as injurious innovations, have yet contributed not a little to the mass of improvement.

This language, as well as the two preceding, has been much more studied towards the close of the eighteenth century than ever before. So many interesting works in literature and science have been published in Germany, particularly within the last thirty years, that the acquisition of the language seems now to be regarded by the literati of Europe as nearly of equal importance with that of the French or English, which have, heretofore, engaged such pre-eminent attention.

SWEDISH LANGUAGE.

The Swedish Language, in the course of a few years past, has also undergone great improvements. Previous to the middle of the century, it had been much neglected, and, like its kindred dialects, the German and the Danish, was but little esteemed in Europe. About that time JOHN IHRE, Professor of Belles Lettres in the University of Upsal, was commissioned, by Queen ULRICA ELEONORA, to translate into Swedish *The Ladies' Library;* by Sir RICHARD STEELE. In obeying this command, he was naturally led not only to study his native language, but also to compare it with the more polished tongue from which the translation was to be made. The result of these inquiries was an attempt to place the language of his country on a more respectable footing than it had before held. With this view he published his *Glossarium Sueo-Gothicum*, which displays great erudition, the talents of a master in criticism, and uncommon sagacity in detecting both the faults and the beauties which he wished to make known. In this work the author exhibits, with great skill, the analogy and etymology of the Swedish language; and may be regarded as standing with the highest in rank among its distinguished cultivators and reformers.

Since the time of Mr. IHRE other writers have employed their talents on the same subject. These writers have established rules of construction, corrected the orthography, discarded foreign phrases and corrupt modes of expression, and by producing works in a correct, elegant, and refined style, have done much to improve their native tongue. Among these, DAHLIN, BOTIN, GYLLENBORG, CREUTZE,

KLEWBERG, LEOPOLD, and LIDNER, are perhaps entitled to the most honourable mention, and furnish examples of Swedish style according to its latest and best improvements.[1] In 1786 a literary association, under the name of the *Swedish Academy*, was established at Stockholm. The principal object of this institution is to cultivate the language of that country; with which view it is said to be preparing for publication a national *Grammar* and *Dictionary*.

RUSSIAN LANGUAGE.

The Russian Language, during the period under review, has also been much and successfully cultivated. This language, which is a dialect of the Sclavonian, was, at the beginning of the eighteenth century, in a wretchedly irregular and neglected condition, very few compositions of dignified character having then appeared in it. Since that time it has employed much of the attention of learned men; grammars and dictionaries have been formed, with many successive improvements; numerous translations from other languages have contributed greatly to enrich and polish it; the Russian academy has long been diligently engaged in its cultivation; and writers of taste have done much to confer upon it regularity and ornament. Previous to the year 1707 the alphabet of this language consisted of thirty-nine letters. In that year it was newly modified, and reduced to thirty. These are chiefly made up of Greek and Roman letters, together with some characters, to express sounds, which are peculiar to the Sclavonian tongue. Though the language of Russia is still imperfect,

[1] See *A General View of Sweden*, by M. CATTEAU.

it is said, by those who have studied it, to be remarkably rich, harmonious, and energetic, and well fitted for every species of composition.'

Among the improvers of Russian style, in the last century, the first place is due to THEOPHANES PROKOPOVITCH, Archbishop of Novogorod, a gentleman of learning and taste, who, during the reign of PETER the Great, laboured much to promote, among his countrymen, a fondness for polite literature, and especially to encourage the study of their native tongue. He was followed by LOMONOZOF, a distinguished poet and historian. He, as well as THEOPHANES, was a Russian by birth, and is stiled the "great refiner" of the language of his country. Next to him stands SUMOROKOF, a distinguished dramatist, who displayed many beauties of composition, which were before unknown in the Russian language; and contributed greatly to the diffusion of a taste for poetry, and a zeal for philological and other polite acquirements. To these may be added the name of KHERASKOF, the author of the first *Epic Poem* in his native language, a work greatly admired by his countrymen, and the appearance of which may be considered as forming an era in the history of their poetry, and, generally, in the progress of their literary character.[v]

In order to spread a taste for literature among her subjects, CATHARINE II. in 1768, appointed a committee to order and superintend translations of the classics, and the best modern authors, into the Russian tongue; and made a liberal allowance for defraying the expense of the undertaking. In consequence of this order, a considerable number of the most esteemed Greek and Roman writers,

t COXE's *Travels into Russia*, &c. vol. ii. chap. viii. and also TOOKE's *View of the Russian Empire.*

v COXE's *Travels into Russia.* B. v. c. viii.

and some of the first class in the English, French, and German languages, became naturalized in her empire." Those who have any acquaintance with philology will readily perceive, that the attempt to transfer the contents of these rich, refined, and regular languages into one less cultivated, must always issue in communicating more or less of the excellences possessed by the former to the latter.

Besides the numerous and important improvements in the more cultivated languages, for which the eighteenth century is distinguished, we may also mention, as a peculiarity of the age, equally worthy of remark, the extensive knowledge which has been acquired, by learned philologists, within a few years past, of many other living languages, even some of the most barbarous and unpolished. The amount of information communicated by modern voyagers and travellers on subjects of this nature, is great and valuable. Among these STRAHLENBERG, SONNERAT, MARSDEN, THUNBERG, FORSTER, and many others, are entitled to honourable distinction.

The idea of tracing the origin and history of nations through the medium of inquiries into their respective languages, if not first conceived, was certainly first reduced to practice, to any considerable extent, in the century under review. It is believed that the first considerable specimen of an inquiry of this nature was given by Mr. JACOB BRYANT, of Great-Britain, a gentleman whose profound erudition, critical sagacity, and unwearied labour, are among the signal honours of the age.[w] Nearly

[v] COXE's *Travels into Russia.*

[w] It is impossible for any friend to virtue and sound learning to pronounce the name of this veteran in literature without veneration. In his *Observations and Inquiries relating to various parts of Ancient History*, and in

about the same time appeared the celebrated and voluminous work of M. COURT DE GEBELIN, before mentioned, in which, with great learning, but with perhaps less judgment, he has investigated the history of nations through the same medium.*

Large and curious collections of languages remarkably abounded in the eighteenth century. Among these the collection of J. LORENZO HERVAS, a native of Spain, but residing at Rome, deserves respectful notice. This learned man, in his great work, entitled *Idea del Universo*, gave a general synopsis of all known languages, their affinities, differences, &c. of which the best judges have spoken in terms of high praise. Of later date, the *Philosophical and Critical Estimate of Fourteen Ancient and Modern European Languages*, by D. JENISCH, of Germany, is also a valuable acquisition to the student of philology.

But the most extensive collection of modern languages which the last age produced, was that formed, toward the close of it, by the learned academicians of St. Petersburgh, in Russia. The Empress CATHARINE II. conceived the vast design of compiling an "Universal and Comparative Vocabulary of all Languages," and ordered such a work to be undertaken. Accordingly M. PALLAS, a distinguished member of the Imperial Academy of Sciences, assisted by a number of other learned men, engaged in the arduous task, and laid the first part of the work before the public in 1786, and another portion of it three years afterwards.

his *New System, or Analysis of Ancient Mythology*, he has displayed an extent, and a minuteness of information truly wonderful, perhaps unequalled by any other individual living; and a degree of critical acumen, and philosophic soberness of inquiry, joined with a love of truth, and especially of Evangelic truth, which entitle him to the lasting gratitude both of the philosopher and the christian.

* *Monde Primitif analysè et Comparè avec le Monde Moderne.* 9 tom. 4to.

This *Comparative Vocabulary*[y] may justly be ranked among the wonders of the century. Specimens of so great a number of languages were certainly never before brought together by human diligence. And the work, while it reflects great honour on the illustrious editor, and his learned coadjutors, and on the public spirit of their employer and patron, the Empress, furnishes most instructive documents, not only towards the formation of an enlightened theory of language, but also for investigating the history of man.

The *Celtic* or *Gaelic* language was the object of much inquiry, by a number of learned men of the last century. Grammars and dictionaries of its different dialects were formed, and new light thrown on the structure and probable history of the language. In these inquiries, Pelloutier, Bullet, Jones, Mallet, and Shaw were much and honourably distinguished. The *Gothic*, in several of its most important dialects, was also diligently and successfully investigated, during the last age, by Wachter, Schilter, Ihre, Lye, and several other learned philologists.

Much valuable information was obtained, during the same period, concerning the languages of the *aboriginal* nations residing on the American continent. For collecting this information, and communicating it to the public, we are indebted to Charlevoix, Carver, Adair, Long, Clavigero, Reverend Mr. Zeisberger,[z] Reverend Dr. Ed-

y *Linguarum totius Orbis Vocabularia Comparativa; Augustissimæ curâ collecta. Lectionis Primæ, Linguas Europæ, et Asiæ complexæ, pars prior.* Petropol. 1786. 4to. *et Pars Secunda.* Petropol. 1789. 4to.

z Mr. Zeisberger was a respectable missionary, sent by the *United Brethren* to preach the gospel among the Indians. His work referred to is an *Essay of a Delaware-Indian, and English Spelling-Book*, printed at Philadelphia in 1776. Besides this gentleman, several other persons, belonging to the same religious communion, have contributed much to the elucidation of Indian languages. Among these, Mr. Pyrlæus, many years

WARDS,[a] and many other gentlemen of observation and diligence. Mr. JEFFERSON, the President of the United States, has also made much inquiry into the languages of the American Indians, and devoted considerable attention to the collection of specimens. But there is certainly no individual to whom we are under so many obligations for investigating these languages, and presenting rich vocabularies to the public, as Professor BARTON, of Philadelphia, whose name we have had occasion to mention so frequently, and with so much respect, in several of the preceding chapters of this work. This gentleman has made large collections of Indian languages,[b] which he has, with great learning and ingenuity, compared with each other, and with some of the languages of the eastern continent. By these investigations he has, not only in his own opinion, but also in the judgment of many of his best informed readers, satisfactorily proved, *that there is but one radical language among the Indians on the American Continent;* and that *the nations of America and those of Asia have a common origin.*[c]

ago a missionary to some of the American tribes, and Mr. HECKEWELDER, who at this time holds an important station in a western mission, deserve to be mentioned with particular distinction, and with many acknowledgments, for their unwearied and intelligent inquiries on this subject.

a JONATHAN EDWARDS, D. D. late President of Union College, at Schenectady; the excellent Son of a still more illustrious Father, whose name was mentioned in a former chapter. Besides the great learning and talents displayed by this gentleman on various theological subjects, which will be noticed in their proper place, he published *Observations on the Language of the Mubbekanecw Indians*, &c. New-Haven, 1788, in which, with a number of ingenious remarks on the structure and genius of the language, he gave some curious specimens of its vocabulary.

b See *New Views of the Origin of the Tribes and Nations of America*, 8vo. 1798, second edition.

c The following passage from Dr. BARTON's work is thought worthy of being inserted at length:

"The inference from these facts and observations is obvious and interesting: that hitherto we have not discovered more than one radical language in the two Americas; or, in other words, that hitherto we have not discovered in America any two, or more, languages between which

The enemies of Revelation, half a century ago, laid great stress, not only on the diversity of *complexion and figure*, but also on the *variety of languages* among men, as arguments for discrediting the sacred history. Both these arguments, by later investigations, have been clearly refuted. Indeed, modern inquiries into the languages of different nations, instead of giving countenance to the rejection of the sacred volume, have rather served to illustrate and confirm its historical records; for they have resulted, if not in complete proof, at least in establishing the highest probability, that all languages bear an affinity to each other; that they may all be traced to a common stock; and that we have reason to conclude, independently of the Mosaic history, that the human race sprang from a single pair.

we are incapable of detecting affinities (and those often very striking) either in America, or in the old world. Nothing is more common than for Indian traders, interpreters, or other persons, to assert, that such and such languages bear no relation to each other; because, it seems, that the persons speaking them cannot always understand one another. When these very languages, however, are compared, their relations, or affinities, are found out. It is by such comparisons that I have ascertained, that the language of the Delawares is the language of such a great number of tribes in America. It is by such comparisons, that future inquirers may discover, that in all the vast countries of America there is but one language: such inquiries, perhaps, will even prove, or render it highly probable, that all the languages of the earth bear some affinity to each other. I have already discovered some striking affinities between the language of the Yolofs (one of the blackest nations of Africa) and certain American tribes. What a field for investigation does this last mentioned circumstance open! Whilst philosophers are busied in investigating the influence of climate and food, and other physical agents, in varying the figure and complexion of mankind, they should not neglect inquiries into the resemblances of all languages. The farther we push our researches of this kind, the more we discover the proofs, if not of the absolute derivation of all mankind from one pair, at least of the ancient intercourse of all the nations of the earth."

CHAPTER XVI.

PHILOSOPHY OF LANGUAGE.

UNDER this head it is intended to present a brief and general view of those inquiries into the *Origin and Progress of Language*, and of *Universal Grammar*, which have been pursued with so much success in modern times. These, it is believed, are in a great measure peculiar to the period under consideration; or, at least, have been conducted more extensively and more successfully than ever before.

The *Origin* of language is a question concerning which disputes have been long and warmly maintained; some contending that it is an invention of man, gradually growing from rude inarticulate cries, into a regular, polished, and systematic form, in the progress of civilization; and others asserting that it must have been reveale l from heaven. This controversy arose many centuries before that which is now under review; but in no preceding age was it ever considered in a manner so extensive, learned, and satisfactory. The former opinion was defended with great zeal, erudition, and ingenuity, by Lord MONBODDO,[d] of North-Britain; by Father SIMON, M. VOLTAIRE, and the Abbé CONDILLAC, of France; and by M.

[d] Lord MONBODDO supposes that language is not natural to man; that men *sang* before they *spake*; that before they arrived at the point at which language began to be used, they conversed together by signs and inarticulate cries; that from these latter language was gradually formed; that all languages are derived from *Egypt*, the great source of science and cultivation; that the Egyptian language is the same with the *Sanscrit*, or sacred language of India, of which the Greek is a dialect. See his *Origin and Progress of Language*.

HERDER,[e] and others, of Germany. The latter doctrine was adopted, and maintained, during the period under consideration, by M. SUSSMILCH, Dr. BEATTIE, Dr. BLAIR, and by many other writers, who have treated either formally or indirectly on the subject.

The true nature and philosophy of language, or the principles of *Universal Grammar*, seem to have eluded the inquiries of the most sagacious for many centuries. A multitude of writers of the first character, from PLATO down to LEIBNITZ, treated largely and ably on the subject; but they did little more than to copy the mistakes of each other, or to present a succession of delusive systems, which would not bear the test of more enlightened examination. Though this may appear strange to a careless or superficial inquirer, yet when the extreme difficulty of the subject is duly appreciated, it will no longer be a matter of surprise that so many great men should, in their investigations, have gone so wide of the mark.

After the many preceding failures to examine with success the philosophy of language, Mr. LOCKE undertook the task, in his great work on the *Human Understanding*.[f] But while he threw much light on the doctrines of mind, and treated more successfully than any preceding writer of the composition and use of terms, he did little to advance the knowledge of universal grammar. His successor, Dr. HARTLEY,[g] assuming different ground, attempted also to form an analysis of language, and to present a philosophical view of the subject. But, like his predecessors, his labours served only

[e] HERDER accounts for the origin of language on mechanical principles, or by combining the organical structure of the body with the faculties of the mind which inhabit it, and the circumstances in which the being is placed, in whom this organization and these faculties are united.

[f] *Essay on Human Understanding*. Vol. II. book iii.

[g] *Observations on Man*. Vol. I. chap. iii. sect. 1.

to show more clearly than ever, the importance, the profundity, and the difficulty of the inquiry.

Dr. HARTLEY was followed by Mr. JAMES HARRIS, a learned English gentleman, who, in his *Hermes*, professed to treat this subject in a formal and systematic manner.[b] He acknowledges himself to be indebted for some of the leading principles of his system to APOLLONIUS, a learned grammarian of Alexandria; but he is, perhaps, still more indebted to Professor PERIZONIUS, a celebrated philologist of Leyden, who, early in the century, in his notes on *Sanctii Minerva*, delivered nearly the same doctrines; so nearly, indeed, that good judges have denied to Mr. HARRIS the honour of having made any important improvement upon them.

The system of grammar taught in *Hermes* is the following. The author divides all words into two grand classes, called *Principals* and *Accessories*. The former he subdivides into two branches, *Substantives* and *Attributives*; the latter into two others, *Definitives* and *Connectives*; so that under one of these four species, *Substantives*, *Attributives*, *Definitives*, or *Connectives*, he includes all the varieties of words. He considers articles, conjunctions, and prepositions, as having no signification of their own, but as deriving a meaning only from their connection with other terms. On these leading principles his boasted fabric rests.

Mr. HARRIS was doubtless a learned and ingenious man; but as some of the best judges utterly deny that his doctrines of general grammar are either original or just, it is not probable that they will long be considered as doing him much honour. His work, however, was, for many years, received with high approbation, not only in the na-

b See *Hermes, or a philosophical Inquiry concerning Universal Grammar.* 1751.

tive country of the author, but also on the continent of Europe, and has, even yet, many ardent admirers.

About the time that Mr. HARRIS laid his doctrines before the public, the philosophy of grammar was an object of laborious and learned inquiry at the celebrated Greek school of Leyden. In these investigations the great SCHULTENS, and after him Professor HEMSTERHUIS, and his disciples, made a distinguished figure. SCHULTENS examined the derivation and structure of the Greek language with great care, and particularly gave some new and interesting views of Greek particles. Afterwards Professor HEMSTERHUIS undertook to derive the whole Greek language from a few short primitives, on a plan entirely original. His speculations were carried further, and received new light, by means of the inquiries of his pupils VALCKENAER, LENNEP, and others. Though the labours of these great philologists were chiefly confined to the Greek language, yet they were intended to throw light on Universal Grammar, and to educe principles applicable to all languages. To give even a brief account of the various opinions which they taught would require a more intimate acquaintance with them than the writer of this retrospect possesses, and would lead to a detail inconveniently and disproportionably extended. It is sufficient to say, that though they failed to form a fair, consistent, and regular fabric, yet they furnished many insulated facts, and useful materials, and analysed many words and classes of terms, in a manner which did them great honour, and rendered important aid to the philosophical grammarian.[i]

[i] For some further information concerning the celebrated Dutch etymologists above mentioned, see *Observations on the Nature of Demonstrative Evidence*, by THOMAS BEDDOES, 8vo. 1793. No man can look into the

The Dutch etymologists were followed by Lord MONBODDO, who, in his *Origin* and *Progress of Language*, gave some general views of the philosophy of grammar. Like PLATO and ARISTOTLE, to whose doctrines, especially those of the latter, he looked with the profound veneration of a disciple, he divided language into two parts, *Noun* and *Verb*, and endeavoured to bring all the other parts of speech under these general denominations. But while he adopts this division of words, in one part of his work, he retracts it in others, and admits principles wholly inconsistent with the general doctrine. So that, though he must be acknowledged to have given some learned and ingenious views of language, yet the praise of having formed an original, consistent, and satisfactory system of philosophical grammar must be wholly denied him.

In 1786[j] this perplexing and mysterious subject, which had so long eluded the researches of philosophers, was unfolded by an English philologist of great acuteness and erudition, in a manner which the ablest grammarians have generally and justly praised. In that year was published the celebrated ΕΠΕΑ ΠΤΕΡΟΕΝΤΑ, or *Diversions of Purley*,[k] by Mr. JOHN HORNE TOOKE, a work in which, as good judges have asserted, " by a single flash of

writings of Dr. BEDDOES without discovering marks of a vigorous, original, and active mind. But are the precipitancy and decision with which he pronounces on some of the most important and difficult questions which occur to the human mind, and the satyrical, contemptuous severity which he indulges towards some of the greatest benefactors to science, consistent with the cautious and candid spirit of philosophy?

j As early as 1778, Mr. TOOKE, in his letter to Mr. DUNNING, laid before the public the substance of the *sixth*, *seventh*, *eighth*, and *ninth* chapters of the *Diversions of Purley*, printed eight years afterwards.

k The Greek scholar will immediately perceive, that the first part of this whimsical title signifies *winged words*, and refers to the author's doctrine of derivation. The second part alludes to the celebrated seat of President BRADSHAW, at which he amused himself with the composition of the work.

light," he has done more to explain the whole theory of language than any, or than all his predecessors. He seems at length, indeed, to have terminated the dispute, and to have dispelled the darkness which, for so many ages, had rested on the subject.

The leading doctrine of Mr. TOOKE is, that there are only two *necessary* parts of speech, viz. the *Noun* and the *Verb*, and that all other words, whether *adverbs*, *conjunctions*, *prepositions*, &c. are to be considered as *corruptions* or *abbreviations* of these two; and, of course, that the latter classes of words, instead of being in themselves, as both Mr. HARRIS and Lord MONBODDO had taught, mere unmeaning sounds, might be traced to a distinct and sensible signification. In dividing all words into two grand classes, Mr. TOOKE agrees with the plan which Lord MONBODDO adopted from PLATO and ARISTOTLE; but with respect to the remaining details of his system he is original, and presents a much more consistent and philosophical view of the subject than any preceding writer. In a few small particulars also, the doctrines of the *Diversions of Purley* had been anticipated by the learned Dutch etymologists before mentioned; but the points of coincidence between them are so few and unimportant as to take away nothing material from Mr. TOOKE of the honour of originality.[1]

[1] The author of Επια Πτεροεντα lately published the first volume, of a new and enlarged edition of his work, intended to consist of three vols. 4to. It is to be regretted, however, that instead of bringing new support to his theory, or pursuing the investigation further than he had before carried it, he has filled up the additional space which the enlargement of his plan afforded him, with nothing more than caustic strictures on the writings of his opponents, and unseasonable exhibitions of his political opinions. Mr. TOOKE and Dr. BEDDOES, in their respective styles of writing, bear a strong resemblance to each other. It is not improbable that the latter has made the great philologist his model. They have both great merit in their way; but it is to be hoped that in several attributes of their composition they will have few imitators.

The general doctrine of Mr. Tooke, especially so far as it applies to the English language, has been pronounced, by the best judges, to be fully established; and the probability is strong that it applies with equal exactness and felicity to all other languages. So far as they have been investigated the result is decidedly in favour of such an opinion. The inquiries of the great etymologists of Leyden, before mentioned, though they differ from Mr. Tooke in many respects, furnish, at the same time, strong confirmation of his doctrine. But it is plain that the absolute proof of the universal truth of this doctrine would require an extent of acquaintance with languages, which can never be acquired by any individual, and which, to be collected by numbers, will require a long course of patient labour. It is to be regretted that so few philologists have pursued the path marked out by Mr. Tooke, and that none have been found to extend the inquiries which he commenced, into regions which he was unable to explore. Even some of the latest writers on the continent of Europe, who have undertaken to philosophize on the subject of language, proceed chiefly upon old and exploded principles; and appear either not to be acquainted with, or not to embrace the discoveries of the sagacious Briton, whose work forms so important an era in the history of philosophical grammar.

Besides the great theorists above mentioned, the philosophy of language has been treated, with great learning and ingenuity, during the period under consideration, by Drs. Campbell[m] and Beattie,[n] before mentioned; and by President De Brosses,[o] M. Beauzee,[p] the Abbé Girard,

[m] *Philosophy of Rhetoric*, 2 vols. 8vo.
[n] *Theory of Language*, published in his *Dissertations*, 2 vols. 8vo. 1783.
[o] *Formation Mechanique des Langues.*
[p] *Grammaire Generale*, 2 tom. 8vo. 1767.

the Abbé CONDILLAC,[q] and M. COURT DE GEBELIN,[r] of France. The opinions taught by the celebrated Scottish professors are too generally known to render a detailed view of them here either requisite or proper; while, with respect to the doctrines of the learned French philologists, the author has too little information to attempt even a general sketch.

These inquiries into the philosophy of grammar have had, it is believed, an useful effect on many modern writings, and, with respect to their probable influence hereafter, may be regarded as of great value. Every investigation which has for its objects the structure, the analysis, and the real improvement of language, doubtless tends, in proportion to its success, to advance the interests of education, to promote every department of science, especially the science of the human mind, and, in general, to increase the happiness of man.

CHAPTER XVII.

HISTORY.

THE historic Muse, during the eighteenth century, had many votaries. From the time of TACITUS to the commencement of this period, she had been supplicated by multitudes, but with little success. After the revival of letters, the first historical productions of respectable character were composed in Italy; but with these the author is

q See the first vol. of his *Cours d'Etude*, in 16 vols. Paris 1775.
r *Hist. de la Parole*, and *Grammaire Universale*.

too little acquainted to compare them with subsequent works of the same class. It may be asserted, however, that previous to the age under review, no historians had arisen, for many centuries, who might be compared with the illustrious models of Greece and Rome, without incurring a sort of literary profanity. But early in the century which is the period of this work, the prospect brightened. Specimens of history began to appear so much superior to the uncouth and meagre compilations of preceding ages, as to inspire a just hope that a more auspicious era was at hand.

There are several circumstances belonging to the historical productions of the eighteenth century which are peculiar to this period, and which distinguish it from all preceding times. An attempt will be made to take notice of some of the more obvious and important of these circumstances in the following pages.

The *number* of historical works produced in the course of the age, is the first circumstance of a peculiar kind which attracts our notice. No former period, certainly, can be compared to this with respect to the multiplication of historical records. Scarcely any portion of time, or the affairs of any nation, or the lives of any conspicuous monarchs, have escaped the notice of some writer who aspired to the rank of an historian. Indeed, this, like every other department of modern composition, has become, within a few years past, so crowded with adventurers, as to render the enumeration of them next to an impossible task.

The historians of the first class in the eighteenth century presented their readers with a greater portion of *truth*, and instructive matter, than any preceding writers of the same class. The works of the best Greek historians are notoriously corrupted by a large mixture of fable. The same remark

may be applied, though not to an equal extent, to the finest Roman models. The best historical works of modern Europe are certainly entitled to more credit, with respect to authencity. It is not meant to be asserted that they are free from misrepresentation and fable, with which they all, in different degrees, abound; but merely that they contain much *less* of these than their predecessors. The reasons of this superiority are obvious. The ancient historians could only consult manuscripts and traditional records. The former were comparatively rare, difficult of access, liable to mutilation, and other injuries, and not easily corrected, when erroneous, by collations with many others which detailed the same facts. The latter is a source of information so obviously imperfect and fabulous, that no prudent writer, in ordinary cases, would receive materials from it with confidence. The stores of information open to modern historians, are more numerous, rich, and authentic. The art of *printing* has multiplied records beyond all former example. The increased intercourse between distant countries, and the facility with which documents may be collected from every civilized quarter of the globe, also present a new and most important advantage to the modern compiler of history. Accordingly, this class of writers, in the course of the century under review, admitted less fiction into their narratives; stated truths in a more luminous, connected and satisfactory manner; and went, in general, more deeply, and successfully into the relations of political causes and effects, than any of their predecessors.[1]

[1] This remark is meant to be a general one; but it admits of some exceptions. The histories of CLARENDON and BURNET, in the preceding century, may be considered as vying, in point of *authenticity*, with the best subsequent works of the same kind. They are both said to be partial; but what book, or what mind was ever completely free from partiality?

We have at least one instance on record, of an eloquent Greek historian attending the Olympic Games, for the express purpose of publicly reciting his history to the assembled multitude. It is natural to conclude that a work formed with a view to such an exhibition would be rather an agreeable *poem*, accommodated to popular prejudices, and addressed to popular feelings, than a faithful record of facts, for the instruction of posterity. The historians of the present day lay their authorities before the reader, and their caution is excited, and their fidelity rendered more vigilant by the recollection that the same sources of information are open to others, and that contemporary rivals, and many classes of readers, will sit in judgment on the truth of their narratives.

Another great improvement, which began in the eighteenth century to characterize the more formal and dignified works on civil history, is connecting the progress of literature, science, arts, and manners, with the chain of civil and military transactions. Very imperfect views of these collateral, but important and interesting objects of inquiry, are to be found in any histories of an earlier date. But of late years, and particularly within the last half century, the best historians have interwoven with their narratives of political and military events, much amusing and valuable information, concerning the religion, learning, laws, customs, trade, and every other object tending to throw light on the progress, genius, and condition of different communities. The importance of this improvement will be readily appreciated by those who love to study the course of improvement which the human mind has exhibited; or who reflect how intimately revolutions, and other national events are often connected with the current of literary, moral, and religious opinions; and how

much a knowledge of one is frequently fitted to elucidate the other.

The author to whom we are probably more indebted than to any other individual, for introducing and recommending this improvement in civil history, is M. VOLTAIRE. His *Age of* LOUIS XIV. was one of the first specimens of a work upon this plan. The attention and admiration which it excited, and the degree in which it has been imitated and surpassed, by many succeeding historians, are generally known.

The best historians of the eighteenth century differ from those of the same class in ancient times, in excluding *speeches* and other extraneous matter from the body of their works. This practice it is well known was much in vogue among the ancients, and was an important part of the *poetical* and even *dramatic* structure at which they appear to have aimed in their historical compositions.[t] The exclusion of every thing of this kind from the best models of history which the last age produced, deserves to be mentioned as a modern improvement. Connected with this circumstance is the practice, also recently introduced, of subjoining to historical works, in the form of appendices, those speeches, state-papers, and other documents, for the support or illustration of their narratives, which would have encumbered or disfigured the text; but which, at the same time, lay open to the reader the sources of information, and augment the sum of instruction and amusement.

Another point of difference between the most respectable historians of the eighteenth century and their predecessors, consists in the superior ex-

[t] Lord MONBODDO pronounces that no man can write history as it ought to be written without the introduction of *speeches*; and that excluding them is one of the numerous symptoms of literary degeneracy which characterize modern times.

cellence of the *style* employed by the former. It is not intended to institute a comparison with respect to this particular, between the best ancient models of history and those of modern times. But it can be doubted by none that the first class of historical works produced in the last age far transcend in excellence of manner, every specimen in this department of composition, which, for fifteen centuries before, had been given to the world.

The first English historian who seems to have paid any attention to style, and who rises to any thing like the dignity of this species of composition, is Lord CLARENDON. The histories which preceded his, though many of them invaluable as repositories of facts, were dull and uninteresting compilations, thrown together without taste or skill, and apparently without even an attempt to excel with respect to style. He had the honour of introducing an higher kind of historical writing among his countrymen; and his work may doubtless be pronounced to have formed a remarkable era in this branch of English literature. Though his sentences are tediously long and involved, and his narratives equally prolix and perplexed; yet he wrote remarkably well for his time, and deserves an honourable place among the improvers of historical style. After CLARENDON, towards the close of the seventeenth century, came Bishop BURNET, who, though inferior to his predecessor in dignity, went beyond him in sprightliness and perspicuity. He was accused of being partial to the houses of Orange and Hanover; but with respect to manner, and general authenticity, he is entitled to much praise, and certainly contributed something to the improvement of English historical style.

On entering the eighteenth century, RAPIN appears as the first respectable historian. His *His-*

tory of England, written in the French language, was first published at the Hague, in 1727, and soon afterwards translated into English by TINDAL. Though RAPIN was by no means master of an agreeable style; and though his zeal to be as full and accurate as possible, led him to protract his work to a tedious length; yet he is entitled to the honour of having compiled one of the most complete, impartial, and satisfactory histories extant. He was one of the last historians of any conspicuity who loaded the text of his work with *speeches* and *state-papers*.

In 1758 another *History of England* was published by Dr. SMOLLET. This production is scarcely equal to the talents of the writer, being compiled in great haste, and rather with a view to profit than fame, and with scarcely any attention to original sources of information. Still with regard to style, it was a considerable step in the course of improvement, and exhibited excellences in this respect superior to any preceding English historian. DR. SMOLLET was followed by his countryman Mr. HUME, who made trial of his distinguished powers in the same field, and with splendid success. He far excelled all his predecessors in beauty and excellence of historical style, and at once raised the character of his country, in this branch of literature, to a very high rank. His work, indeed, is charged with glaring partiality; and that spirit of hostility to religion which he was known to possess too frequently appears, whenever, in the course of his narrative, a pretext for this purpose was presented. It must even, further be allowed, that, with respect to style, in which his great excellence lies, he is not without considerable faults. But in the choice and arrangement of his materials, and especially in native ease, spirit, and force of language, he has no equal among modern historians,

and has certainly furnished a specimen of history which will bear a very honourable comparison with the illustrious models of Greece and Rome.

Soon after Mr. HUME's publication, his countryman and contemporary, Dr. ROBERTSON, gave to the public his *History of Scotland*, which was followed by the *History of* CHARLES V. and the *History of America*. This gentleman unquestionably deserves a place among the greatest historians of the age, if he do not occupy the very first station. Though his narrative is not equal to Mr. HUME's in ease and spirit, yet he exceeds him in uniform purity, dignity, and elegance of diction. In these respects Dr. ROBERTSON may be pronounced to stand at the head of all modern historians, and perhaps to have no superior of any age.

In enumerating the first class of English historical writers, Mr. GIBBON comes next in order. The *History of the Decline and Fall of the Roman Empire* forms an interesting article in the catalogue of modern historical works. The insidious and malignant zeal to discredit religion so often manifested in this work, is well known. And the artificial structure, the circuitous obscurity, and the meretricious ornaments of the style are no less generally acknowledged. Notwithstanding, therefore, all the learning, and other splendid accomplishments of this celebrated historian, he is far from having furnished a model that can be safely imitated, or conferred any real improvement on this department of English literature. Nor is his work less hostile to all the interests of decorum and virtue, than to the best rules of taste and criticism.[v]

[v] Those who would see a faithful exhibition of the partiality, the want of regard to truth, and the shameful obscenity which abound in Mr. GIBBON's celebrated work, especially in the fourth, fifth and sixth volumes of the quarto edition, will do well to consult the very able review of this part of the work, by Mr. WHITAKER, first published in a British literary journal, and since reprinted in a separate volume. 8vo. 1791.

Though the three last mentioned writers are generally represented as holding the first rank amongst English historians, there are some other names, worthy of honourable distinction, belonging to the period of this retrospect. Lord LYTTLETON's *History of* HENRY II. has long and deservedly sustained a very high character. Dr. GOLDSMITH's *Histories of Rome* and *England* are written in the agreeable style of that popular author. The *History of England*, by Mrs. MACAULAY, is a very respectable specimen of female talents, and holds a conspicuous place in the list of English historical compositions. Besides these the histories of Dr. HENRY, Professor STUART, Dr. WATSON, Mr. MITFORD, Dr. GILLIES, Dr. COOTE, Mr. FERGUSON, Dr. RUSSELL, Mr. ANDREWS, Mr. BELSHAM, and several others, have received much praise. To designate the comparative and peculiar merits of each of these would lead to a discussion altogether beyond the limits of this chapter. It is sufficient to say that, with different views, and various grades and kinds of talents, they have all presented the public with works which do them honour, and which occupy an important space in the annals of English literature.

But it was not only in Great-Britain that historians of an highly respectable character arose in the course of the last age. Most of the countries of Europe, and especially those distinguished by the cultivation of letters, may boast of a number who hold an elevated rank in the same department of literature.

The historians of France, during this period, were numerous and distinguished. Early in the century M. ROLLIN, by his *Ancient History*,[w] estab-

[w] The respect every where paid by M. ROLLIN, in the course of his history, to the government and providence of God, and to Revelation, deserves particular notice, and is one of the numerous characteristics of

lished his character as an interesting and instructive writer, and has been more generally perused and praised than most other historians of the age. He was followed by M. VERTOT, who, in several historical works, displayed considerable talents, especially in gracefulness of manner, and in the happy art of rendering his narrative entertaining. Next in order occur the numerous and extensive historical works of M. VOLTAIRE. There can be no question that this writer, in style, in comprehension of mind, in the philosophical cast of his inquiries, and especially in his reflections, exceeded all the former historians which his country had produced. But it requires only a slight acquaintance with his works to perceive that he is partial, uncandid, grossly defective in authenticity, and disposed, upon every pretext, to depart from probability, truth, and decorum, for the purpose of reviling the religion of Christ.* The Abbé MILLOT succeeded VOLTAIRE, and in his *Elements of General History*, an elegant and popular work, raised a monument to the honour of himself and his country. The Abbé RAYNAL, in the *History of the East and West Indies*, presented the public with a production, which, though not generally respected as authentic, drew much of the attention of the literary world.y To these it would be unpardonable

this great work, which recommend it to the general perusal and regard of those who love truth, virtue and piety.

x The degree of credit due to M. VOLTAIRE, as a recorder of facts, will appear in the perusal of a work entitled the *Letters of certain Jews*, &c. written by the Abbé GUENNE, Professor of Rhetoric in the University of Paris, and published about the year 1770. In this work the author is enabled, by his profound erudition, his vigorous and penetrating mind, and his talents for mild, but most efficient satire, to place the historian of *Ferney* in a point of light by no means honourable either to the accuracy of his learning, or to his love of truth.

y The Abbé RAYNAL's work is said, by Mr. BRYAN EDWARDS, to have no more title to the character of authentic history than *Robinson Crusoe*. This is, probably, an extravagant mode of expressing what is no doubt true, that the Abbé is often chargeable with taking his statements from imagination rather than from authentic records.

not to add the justly celebrated *History of the Reign of Queen Elizabeth*, by Mademoiselle KERALIO,[2] which has been pronounced by good judges to be an impartial and elegant production. Several other respectable historians appeared in France, towards the close of the century, who would deserve to be mentioned in connection with the foregoing names, did our plan admit of entering into further particulars.

In Germany no historical work deserving of high praise, with respect to arrangement, structure and style, had appeared prior to the middle of the century under consideration. Since that time the successive works of SCHMIDT, MULLER, HABERLIN, HEINRICH, SCHILLER, WAGNER, GALLETTI, BUCHHOLZ, BECK, MEINERS, BACKZO, and several others, have raised the character of their country with respect to this species of composition. Of these it is believed that SCHILLER, in ease, spirit and interest of narrative, and in correctness and elegance of style, stands at the head of the list of German historians.

In Sweden, BENZELIUS and WILDE, soon after the commencement of the century, first undertook to present the history of their country in a connected and agreeable form. They were succeeded by DAHLIN, who pursued the same course with more taste and success. About the same time appeared the work of BOTIN, which is much distinguished for the excellence both of its matter and style. Besides these, a still larger performance of LAGERBRING deserves a respectful notice among the improved specimens of history which that country produced during the period of this retrospect. To the above names may be added those of CELSIUS and HALLENBERG, who have also been

[2] *History of the Reign of Elizabeth Queen of England*, 4 vols. 8vo. 1785.

considerably praised, in their own country, for several historical compositions.[a]

The historians of the rest of Europe, during this period, though numerous, were few of them extensively known, or higly esteemed. The *History of Denmark*, by M. P. F. SUHM, is said to be a work indicating considerable erudition and talents The *History of Mexico*, by CLAVIGERO, and the *History of the New World*, by MUNOZ, as they supplied, in some degree, important *desiderata* in the republic of letters, may be regarded as among the most interesting of the numerous volumes which might be recounted, did our limits admit of such details.

On the whole, it is believed that Great-Britain produced the best models of historical composition of which the eighteenth century can boast. Though some of the French historians, and particularly M. VOLTAIRE, seem to have led the way in forming the present improved taste in this species of writing; yet there can be no doubt but that their British successors went far beyond them, and produced histories which, in the choice and arrangement of facts, in dignity, purity, and elegance of style, and in general authenticity, display an assemblage of excellences which were never before equalled in any age or country. Next to these the historians of France and Germany justly claim superior rank. The other countries of Europe stand in an order, with respect to degrees of excellence, which it is neither easy nor necessary to adjust.

Though America has not yet produced historians who can vie with the first class of British models, yet she has given birth to a number quite proportioned to her literary age and standing, and some which will do her lasting honour. These all

[a] CATTEAU'S *View of Sweden*, chap. xxiii. 8vo. Lond. 1790.

belong to the eighteenth century. The first historical work published by a native American, was the *History of Virginia*, by the Reverend WILLIAM STITH, President of William and Mary College. This gentleman was learned, collected his materials with a singularly minute care, and, it is said, may be relied on, as exceedingly faithful and accurate; but his manner is inelegant, and uninteresting. STITH was followed by Mr. BEVERLY, who wrote the history of the same Province, up to the year 1700. If his predecessor were too minute and tedious, BEVERLY ran into the opposite extreme, and failed of being so instructive or pleasing as he might otherwise have been, from his excessive brevity.

The next American who displayed his talents in this department of literary labour was CADWALLADER COLDEN, Esquire, Lieutenant-Governor of the Province of New-York, who was before mentioned as a respectable physician, botanist, and astronomer. His *History of the Five Nations of Indians* is another monument of his talents and diligence. In 1756 WILLIAM SMITH, Esquire, published his *History of the Province of New-York*, a work which, though executed at an early period of the life of the author, and in great haste, yet affords a large and very valuable amount of instruction to the student of American history. In 1765 Mr. SAMUEL SMITH published a *History of New-Jersey*, which appears to be a judicious and faithful compilation. A few years afterwards Governor HUTCHINSON presented to the public his *History of Massachusetts*, which holds a respectable rank among the historical productions of this country. He was followed by Dr. DAVID RAMSAY, of South-Carolina, who, in his *History of the American Revolution*, and his *History of the Revolution in South-Carolina*, has done honour to

his fidelity, diligence, and literary taste. In 1792 the Reverend Dr. JEREMY BELKNAP completed his *History of New-Hampshire*, a work which will long be considered as an honourable testimonial of the industry and judgment of the author.[b] Two years afterwards Dr. SAMUEL WILLIAMS gave to the public his *History of Vermont*, which indicates an ingenious and philosophical mind, and contains much useful information. The next American history is that of the *District of Maine*, by JAMES SULLIVAN, Esquire, which affords a considerable portion of interesting instruction to the student of American history. In 1797 appeared the *Civil and Ecclesiastical History of Connecticut*, by the Reverend Dr. BENJAMIN TRUMBULL, a performance which, for the fulness of the information which it exhibits, and the minute accuracy and fidelity manifested in every part of the narrative, deserves high praise.[c] In the same year was published a *History of Pennsylvania*, by Mr. ROBERT PROUD, which, though not distinguished by much taste in the selection and arrangement of its materials, nor by the correctness or elegance of its style, is yet entitled to credit as a faithful compilation of facts, especially as it presents a concise view of the society of *Friends*, and a very satisfactory account of the settlement and progress of that denomination of Christians in Pennsylvania. The last important work of this kind given to the

b Dr. BELKNAP will long be respectfully remembered by the friends of literature in Massachusetts, and in the United States. Besides presenting the public with works which must be considered among the best specimens of history and biography which our country has produced, there were few men in America more learned, of more solid and useful talents, or more devoted to the establishment and support of literary and scientific institutions. He who shall attempt hereafter to give a view of the progress of literature in New-England, and especially in Massachusetts, must assign a conspicuous place to the character and labours of Dr. BELKNAP.

c This gentleman is now engaged in compiling a *History of the United States*, on which he has bestowed much time and labour, and of which those who know his fidelity and accuracy, entertain high expectations.

American public is a *Continuation of the History of Massachusetts*, by GEORGE R. MINOT, Esquire, of that State, a work of considerable merit, and which it is hoped the ingenious author will be induced soon to complete.[d]

A new plan of history was introduced, a few years ago, by the Reverend Dr. HENRY, of Edinburgh, in his *History of Great-Britain*,[e] in which the civil, military, naval, commercial, constitutional, and scientific departments of his work are severally placed in distinct chapters, and while their mutual influence is stated, may each be read separate from the rest, through the whole period embraced by the historian. In this plan he was followed, with some improvements, by Mr. JAMES P. ANDREWS, whose premature death the literary world has much reason to regret; and to whom it is hoped some successor will appear as competent to tread in his steps as he was in those of Dr. HENRY.

The mode of writing history in the form of *Letters* is, in a great measure, if not entirely, peculiar to the century under consideration. This form of historical composition, it is believed, was first introduced into the English language by Lord LYTTLETON, and was afterwards adopted by Dr. GOLDSMITH, Dr. RUSSELL, and others. That it presents some advantages, chiefly on the score of that ease and familiarity admissible in the epis-

[d] Since the above was written, this gentleman, to the regret of all who knew him, has been removed by death. His learning and talents, combined with a degree of modesty, urbanity, and dignity of character truly rare, endeared him to a large and respectable circle of friends, and rendered him one of the ornaments of his native State. Seldom has the memory of any man been more highly respected, or more fondly cherished by his acquaintance, than that of GEORGE RICHARDS MINOT.

[e] Some years before the appearance of Dr. HENRY's work, Dr. MOSHEIM had adopted a plan somewhat similar in his *Ecclesiastical History*. Dr. HENRY is entitled to the honour of having introduced this plan into *civil* history, and of having conferred upon it several important improvements.

tolary style, is obvious; but whether it be consistent with the proper structure, continued narrative, and true dignity of history, may certainly be questioned.

A new species of historical composition to which the age under review has given rise, is that which is commonly called *Statistical History*. The word *Statistics*, as the name of a peculiar kind of inquiry, was first introduced into the English language by Sir JOHN SINCLAIR. He derived it from the German writers, who have long employed the term to signify those topics of inquiry which interest the *statist*, or *statesman*. That is a proper *Statistical* history of any country which exhibits every thing relating thereto, which the *rulers of the State* are concerned to examine and know. Those who have given histories of this kind in Germany are numerous. The first and most conspicuous *Statistical* historian in the annals of English literature is Sir JOHN SINCLAIR, who has collected, in this form, an amount of information concerning North-Britain, which does much honour not only to the individuals who furnished the information, but also to the industry and public spirit of the editor.[f]

The execution of a plan of *Universal History*, to any considerable and useful extent, was first accomplished in the eighteenth century. It is certain that English literature can boast of no respectable production of this kind before the commencement of the period in question. Since that time works of this nature have been compiled in various parts of Europe, and some of them are entitled to high praise, with respect both to their fulness and their judicious structure.

[f] Proposals have been published for the compilation of *statistical histories* of several of the American States, and smaller districts of our country. Among the most important and promising of these are the proposals made by the Connecticut Academy of Arts and Sciences, to publish a statistical history of that State. From the talents and learning included in that body high expectations are formed concerning their projected work.

The last age was also very productive of another class of historians, in a great measure peculiar to it. These are the persons who have undertaken to deduce the progress, and exhibit the condition of *Counties*, *Cities*, and other particular *Districts*. Among those who have distinguished themselves, by works of this kind, in the English language, are Mr. GROSE, Mr. POLWHELE, Dr. AIKEN, Mr. PENNANT, and many others, whose industry and judgment, in bringing together so large a mass of documents relating to the several objects which they undertook to describe, deserve the highest praise.

There is another species of historical composition, in some measure peculiar to the age under review, of which several meritorious specimens have been given. It consists in an exhibition of ancient events, literature, and manners, under the denomination of *Travels*, and in the fictitious style of *Romance*. In this class of writings the *Athenian Letters*, printed in Great-Britain, in 1740, are entitled to the first place. This work consists of the imaginary correspondence of a set of Greek gentlemen, the cotemporaries of SOCRATES, PERICLES, and PLATO; but was in reality the actual correspondence of a society of ingenious and learned gentlemen in the University of Cambridge, who, under fictitious characters, communicated to each other the result of their researches into ancient history, and, through this medium, laid before the public an entertaining and instructive work.[g]

g When this correspondence had continued for a considerable time, and the number of letters had become so large as to render the transcribing of them for the use of the association too troublesome, it was agreed to print *twelve* copies, which was accordingly done, in the year 1740; but the work was not then published. In 1781, another small edition of *one hundred* copies was printed; but the work could not yet be said to be published, as the circulation of it was confined to a few individuals. It was not until 1798 that it was, strictly speaking, laid before the public, in two vols. 4to. This work is said to be the best commentary on THUCYDIDES that ever was written. It was at first supposed that BARTHELEMI had

The next remarkable production of this kind, which has been still more celebrated than the *Athenian Letters*, is the *Travels of Anacharsis*, by M. BARTHELEMI. The models of this learned composition are said to have been the *Cyropædia*, and the *Travels of Cyrus*; and the author, we are told, devoted to it the labour of thirty years. Its great merit and singular popularity are well known. *The Travels of Antenor*, by M. LANTIER, in imitation of BARTHELEMI's work, is, in every respect, inferior to that curious production.

Besides the various kinds of history which have been mentioned, the eighteenth century produced histories of several *Arts*, *Sciences*, and departments of *Literature*. These, if not peculiar to this period, have greatly increased, in the course of it, in number, accuracy and value. Of the large list which might be recited, it is proper to notice, with particular respect, the learned and judicious *History of Philosophy*, by BRUCKER, abridged and presented in an English dress, by Dr. ENFIELD; the *History of Astronomy*, by M. BAILLY; the *History of Optics* and of *Electricity*, by Dr. PRIESTLEY; the *History of Chemistry*, by BOERHAAVE, WEIGLIB, and others; the *History of Medicine*, by LE CLERC and SPRENGEL; the *History of English Poetry*, by Dr. WARTON; the *History of Music*, by Dr. BURNEY; the *History of the Law of Nations*, by WARD; the *History of Jacobinism*, by the Abbé BARRUEL; and the history of the *Fine Arts*, by the Abbé WINCKLEMAN, and others.

The plan of publishing large *Collections of State Papers*, for historical purposes, though conceived, and in some degree executed, before the commencement of the eighteenth century, yet pre-emi-

taken the plan of his work from this publication; but it has since appeared that he had never seen the *Athenian Letters* previous to the completion of his celebrated *Travels of Anacharsis*.

nently belongs to this period. Never, certainly, were collections of this kind so numerous, extensive, and rich, or so useful to the historian, as during the last age. They were so numerous, indeed, that no attempt can be made here to recount even the most voluminous and remarkable which were compiled in various parts of Europe. The most curious and valuable *Collection* of this kind that has been made in America, is that by Mr. EBENEZER HAZARD, of Philadelphia, who, for his useful labours, is entitled to the thanks of every one who wishes to become acquainted with American history.[b]

Among the various contrivances to facilitate the acquisition of historical knowledge, to which the age in question gave birth, may be mentioned the *Charts of History*, in different forms, which modern ingenuity has framed. These, it is believed, were first brought into Great-Britain from the continent of Europe. Among the first presented to the British public were those invented and delineated by Dr. PRIESTLEY, with whose indefatigable labours we meet in almost every department of literature and science. The *Lectures on History*, by the same gentleman, may be considered, on the whole, as one of the most able and useful works produced by its author; and indeed as among the best and most satisfactory views of that subject which the age furnished.

The eighteenth century not only gave birth to many original productions of the historical kind, but also to many very valuable translations of the works of ancient historians. This exhibition of the well-constructed and elegant productions of antiquity in modern dress, while it de-

b See *Historical Collections*, &c. by EBENEZER HAZARD, A. M. 2 vols. 4to. 1792 and 1794.

serves to be mentioned among the literary enterprises which distinguish the age under consideration, may also, at the same time, be pronounced to have exerted a favourable influence on the character of modern historical composition.

It is impossible to dismiss this subject without recollecting how much the researches of historians, in the eighteenth century, have contributed to furnish evidence in favour of Revelation. There never was a period in which *Antiquities* were so extensively and successfully investigated; and every step of this investigation has served to illustrate and support the sacred volume. A few superficial inquirers, in the course of the century, supposed and hoped that they had made discoveries from the stores of antiquity which would be found destructive of the inspired history. But these fond hopes were soon disappointed. When the path of inquiry opened by these sanguine discoverers was pursued further, and the facts on which they rested their opposition to Scripture were more closely examined, they were found to terminate in evidence of a directly contrary kind from that which was at first expected. In this view it may be asserted, that some portions of the evidence in favour of Christianity, instead of growing weaker by time, are more convincing and satisfactory to the candid mind, at the present hour, than they were, or could have been, fifteen centuries ago.

CHAPTER XVIII.

BIOGRAPHY.

BIOGRAPHY is one of the oldest species of writing. After the restoration of learning this branch of historical composition became particularly popular in Italy and France. From the latter country the same taste passed into Great-Britain, where it has been ever since growing. Since the commencement of the eighteenth century, every literary country of Europe has produced a greater number of biographical works than at any former period. There certainly never was an age in which *Memoirs*, *Lives*, collections of *Anecdotes*, &c. respecting the dead, were so numerous, and had such a general circulation, as that which is the subject of this retrospect.

Perhaps few works have contributed more to form a taste for biography, in modern Europe, than the *Dictionary* of M. BAYLE, one of the most curious and learned publications of any age. Early in the century under review this work was translated into English, and circulated in Great-Britain. Not long afterwards it was republished, with very large additions, which nearly doubled its original extent. The *Biographical History of England*, by GRAINGER, is entitled to the next place in recounting the British productions of this nature. This was followed by the *Biographia Britannica*, by Dr. KIPPIS, after the manner of BAYLE. Since the appearance of this large collection of biography, several works, of a similar kind, have been laid

before the British public by ADAMS and others. The last publication of this class, and in some respects the best, is that by Drs. ENFIELD and AIKEN, undertaken a short time before the close of the century, and yet unfinished.

Besides these general biographical works, there were others, intended to exhibit the lives of particular classes of eminent persons, of which a number of high character were compiled and circulated during the last age. The *Lives of the British Admirals* form an important and interesting collection of this kind. The *Biography of illustrious British Naval Characters*, by CHARNOCK; the lives *of Eminently Pious Women*, by Dr. GIBBONS; the *Biographia Medica*, by HUTCHINSON; the *Biographia Literaria*, by Dr. BERKENHOUT; and several other similar works, are also entitled to respectful notice in enumerating this class of modern writings.

The biographical collections made on the continent of Europe, during the last age, were numerous and extensive, especially in the French and German languages. Among these the *Histoire Literaire*, of M. SENNEBIER, has attracted much attention, and received much praise. Besides this, the *Biographical Dictionary of learned Swedes*, by GEZELIUS; the *Lives of the Great Men of Germany*, by KLEIN; and the large biographical works, by SCHRANCK, SCHILLER and MEINERS, of Germany; by D'ALEMBERT, of France; and by TENEVELLI and FABRONIUS, of Italy, deserve honourable distinction. Of many others, perhaps equally worthy of commendation, the author has too little knowledge to enable him to speak, and especially to delineate their character.

But amongst all the *Collections of Lives* which the eighteenth century produced, the greatest, if not in bulk, yet in sterling merit, is the *Lives of the English Poets*, by Dr. SAMUEL JOHNSON. It

is believed that this collection is without a parallel in any language, and certainly unequalled in the history of English literature. The author has been charged, indeed, with discovering strong and even bitter prejudices against some of the best characters which he undertook to review. But admitting this to be true, and in some instances there is perhaps too much foundation for the charge, it may still be asked, where the student of polite literature will meet with another collection of biographical sketches, at once so original, instructive, and entertaining; with a body of criticism so refined and discriminating; with a work abounding in so many beauties of style, so many just observations on human nature, so many curious and striking remarks on various departments of knowledge and of life, so many comprehensive views, and all so pure in their moral character, as the *Lives of the Poets* display? The stores of literature, it may be confidently pronounced, will furnish him with no such work.[i]

Among the numerous single biographical works which the last age produced, it will be impossible to recount all, or even the greater part of those which are worthy of notice. A few of those which are distinguished in the annals of English literature may be slightly mentioned. The *Life of Cicero*, by Dr. MIDDLETON; the *Life of Erasmus*, by Dr. JORTIN; the *Life of Swift*, by Mr. SHERIDAN; the *Life of Metastasio*, by Dr. BURNEY; the *Life of Doddridge*, by Mr. ORTON; the *Life of Petrarch*, by Mrs. DOBSON; the *Life of Bacon*, by Mr. MALLET; the *Life of Lorenzo de Medici*, by

i While this warm and unreserved praise is bestowed on Dr. JOHNSON, and particularly on the great biographical work which is the subject of the above paragraph, it is perhaps proper to inform the reader, that my opinions, on a variety of subjects, by no means coincide with those which he frequently avows, and takes pains to inculcate. What these opinions are, it would be unsuitable in this place to detail.

Mr. ROSCOE; the *Life of Burke*, by Dr. BISSETT; and the *Life of Milton*, by Mr. HALEY, claim a distinction in this class of modern writings, which demands particular notice.

The *Life of Dr.* JOHNSON, by Mr. BOSWELL, is a curious and singular specimen of biography. Perhaps no character was ever so fully displayed in its alternate exhibitions of greatness and littleness as the illustrious subject of this work. Mr. BOSWELL, in the compilation, had in view as a model, the *Memoirs of* GRAY, by Mr. MASON; but in the opinion of the best judges, the biographer of JOHNSON, with all his vanity and weakness, greatly exceeds Mr. MASON in the quantity, the variety, and the richness of his materials. In favour of this plan of biographical composition much may be said. Had we memoirs of this ample and minute kind of every great benefactor to the interests of science, literature and virtue, they would form a most curious, and, in some respects, an invaluable treasure. But it may well be questioned whether dragging into public view, and placing on permanent record, the occasional follies, the temporary mistakes, and every unguarded sally of merriment or passion, into which a great mind may be led, ought to be approved or encouraged. To delineate a character faithfully in its leading features, whether great and honourable, or otherwise, is the duty of every good biographer; but to crowd the pages of an eminently wise and vir-

j Works intended to do honour to learned and ingenious men, by collecting their wise and witty sayings, and giving familiar details of their conduct, were compiled many centuries anterior to the eighteenth. The earliest work of this kind now extant is the *Memorabilia* of XENOPHON. WOLFIUS, in his *Casaboniana*, tells us that the first of the *books in one*, was that compiled in honour of the great SCALIGER, and called *Scaligerana*, drawn from the papers of VASSANT and VERTUNIAN, who took the whole from the mouth of that celebrated scholar. In later times works of this nature have wonderfully multiplied. *Monthly Review.*

tuous man's life with the recital of every momentary error and ridiculous foible; to dwell with as much studious care on the trivial follies and prejudices of such a character, as on his sublime powers and excellence; and to record every vain or erroneous saying, or unjustifiable action, which cannot be considered as properly belonging to the character, may be safely pronounced to be a plan of biography which, though highly interesting, is neither useful nor wise.[1]

The manner of M. BAYLE has been imitated by many subsequent writers. Of these the most remarkable compiler of individual *Lives*, in the English language, is Mr. HARRIS, whose biographical works, on JAMES I. CHARLES I. OLIVER CROMWELL, and CHARLES II. are generally known, and have been much applauded.

Many *single Lives* of eminent men, on different plans, and of various degrees of merit, appeared on the continent of Europe, in the course of the last age. Of these the *Life of Petrarch*, by the Abbé DE LA SADE; and the *Life of Erasmus*, by M. BURIGNI, deserve particular notice. They are both biographical works of great merit, and probably have few superiors of their kind in any language. Perhaps it might be added, that the plan

[1] There are two extremes into which biographers are apt to fall. The one is adopting a continued strain of eulogy, and endeavouring either wholly to keep out of view, or ingeniously to varnish over the errors and weaknesses of those whose lives they record. To this fault in biographical writing Mr. HALEY discovers, perhaps, too strong a tendency. If I do not greatly mistake, his *Life* of MILTON and his *Life* of COWPER may both be justly impeached on this ground. The other, and a more mischievous extreme is, recording against departed worth, with studied amplitude, and disgusting minuteness, the momentary mistakes of forgetfulness, the occasional vagaries of levity, and the false opinions, expressed not as the result of sober reflection, but thrown out either in a mirthful hour, or in the heat of disputation. Of the latter fault Mr. BOSWELL's *Life* of JOHNSON furnishes perhaps the most singular example. The proper course is between these extremes; and of this course it is to be lamented that we have so few models.

on which they are composed is, on the whole, the best plan of biography now in use. But these are only two specimens out of a very large list which, were the author sufficiently acquainted with them, might, with propriety, be mentioned with nearly equal honour. The *Life of* M. TURGOT, by M. CONDORCET, and the *Life of* M. DE VOLTAIRE, by the same author, have also been much celebrated and admired, among a certain class of readers.

At the close of the eighteenth century a species of biographical writing came into vogue, of which, it is believed, no example ever appeared in any preceding age. This is the *Accounts of distinguished Living Characters*, with which, for some years past, Europe has abounded. It is not easy to say whether this species of writing is more useful or injurious in its tendency. Like almost every other kind of literary work, however, its effect must depend on the mode in which it is executed. If this be impartial, skilful, and just, it will, doubtless, tend to satisfy curiosity, to encourage rising genius, to correct the foibles of public men, and to extend general knowledge.

Means were adopted, during the last age, for facilitating the acquisition and retention of biographical knowledge, similar to those which were before mentioned as belonging to the department of history. Biographical *Charts* were first formed on the continent of Europe, where they have appeared in various forms. This contrivance, it is believed, was first introduced into Great-Britain by Dr. PRIESTLEY.

CHAPTER XIX.

ROMANCES AND NOVELS.

FICTITIOUS narrative, as a medium of instruction or entertainment, has been employed from the earliest ages of which we have any knowledge. Of this kind of composition, we have some interesting specimens in the sacred writings. But, like every thing else in the hands of depraved man, it has been unhappily perverted and abused. For many centuries the only form of fictitious history in vogue was that of *Romance*,[l] or descriptions of the characters and manners of former times, mingled with many extravagant and improbable circumstances, and calculated to meet that fondness for the marvellous, which so strongly characterizes the human mind.

One of the earliest writers of this class, of whom we have any distinct account, but by no means one of the most extravagant of them, was HELIODORUS, Bishop of Tricca, in Thessaly, who lived in the fourth century.[m] His work was entitled

l The word *Romance* is of Spanish origin, and signifies the Spanish tongue; the greater part of which is derived from the ancient Latin or Roman language. It seems the first Spanish books were fabulous, and being called *Romance*, on account of the tongue in which they were written, the same name was afterwards given, by the other nations of Europe, not to Spanish books, which is the proper application of the term, but to a certain class of fabulous writings. See BEATTIE *On Fable and Romance.*

m Doubts have been entertained whether the work of HELIODORUS were really the first romance. Some suppose that instances of this kind of writing may be traced back as far as the time of ARISTOTLE. Others have thought that, from the *Asiatic Researches*, and other modern publications on Oriental literature, there is reason to believe that the native country of *Romance* is the *East*, which seems to have produced many extravagant specimens, from time immemorial. See *Curiosities of Literature*, by D'ISRAELI.

Ethiopics, from the scene of the adventures being laid in Ethiopia. And although it was a decent and moral performance, and the inhabitants of Antioch attested that it had reformed the females of their city; yet the author, for writing, and refusing to suppress it, was deprived of his Bishopric, and deposed from the clerical office. M. BAYLE humorously observes, that the marriage of *Theagines* and *Chariclea*, the hero and heroine of this romance, was the most prolific of any that he had read of; having produced all the romances which have been written since that time.

After the time of HELIODORUS romances became still more extravagant and absurd in their character. The times and principles of *Chivalry* conferred upon them new features, and gave them a different cast from all the fictitious writings which had before appeared. In these performances the reader was continually presented with the wild absurdities, and the heroic exploits of knight-errantry. Giants, dragons, enchanted castles, fairies, ghosts, and all the tribes of imaginary wonders were constantly passing before him. Probability, and even possibility, were little consulted. To arrest, astonish, and intoxicate the mind, seem to have been their principal objects. But extravagance was not the only fault of the old romantic writings. They were often grossly immoral in their nature and tendency, abounding in every species of impure and corrupting exhibition of vice. They were also, in general, tediously diffuse, extending to many volumes, and fatiguing the reader with their unnecessary prolixity.

Romance retained its empire in every literary part of Europe, until the beginning of the seventeenth century, about which time MIGUEL DE CERVANTES, a native of Madrid, published his celebrated satirical romance, entitled *The History of*

Don Quixote. This performance was expressly intended to pour ridicule on those masses of absurdity and impurity which had so long maintained an influence over the world. Few works were ever so much read, or so effectually answered their proposed end. Its effect was equal to the most sanguine expectations of the author. It destroyed the reign of chivalry; produced a new modification of public taste; occasioned the death of the old romance; and gave birth to another species of fictitious writing.

This may be called romance divested of its most extravagant and exceptionable characters. In the works of this kind the heroism and the gallantry of the old romance were in a degree retained; but the dragons, the necromancers, and the enchanted castles, were chiefly banished, and a nearer approach made to the descriptions of real life. The *Astræa* of M. D'URFE, and the *Grand Cyrus*, the *Clelia*, and the *Cleopatra*, of Madame SCUDERY, are among the most memorable specimens of romance thus pruned and improved. These works, however, had still too much of the improbable and unnatural to please a just taste; and therefore gave way to a further improvement, which was the introduction of the modern *Novel*.

The word *Novel* is intended to express that kind of fictitious history, which presents natural and probable exhibitions of *modern* manners and characters.[n] In this species of writing the extrava-

[n] Most writers on this subject employ the word *Romance* to express both those performances which pourtrayed *ancient* manners, with all the extravagance and folly of chivalry; and those which depict *modern* manners true to nature and life. But since the word *Romance* is considered as invariably expressive of something wild, unreal, and far removed from common practice, ought not some other word to be adopted, to designate those fictitious works which profess to instruct or entertain by describing common life and real characters? And is not the word *Novel* well suited to this purpose of discrimination? This word has long been used; but, if I do not mistake, in many instances, without that accuracy of application which is desirable.

gance, the heroic exploits, the complicated and endless intrigues, and the mock elevation before thought necessary, were abandoned: heroes, instead of being taken from the throne, were sought for in common life: in place of the enchanted castles, the conflicts of giants, and the absurdities of chivalry, the incidents which daily happen in the world, the ordinary scenes of social and domestic intercourse, were introduced: instead of the pompous, inflated style formerly admired, and which alone was congenial with the romantic spirit, a more simple and familiar manner was adopted; and, from ten or twelve tedious volumes, the narrative was reduced to two or three, and seldom much exceeded the latter number.

Of modern *Novels* a few appeared in the seventeenth century; but the number was so small, and the character of these, for the most part, so low, that even the names of but a small portion of them have reached the present time. The eighteenth century may be peculiarly and emphatically called the *Age of Novels*. The first great work of this kind, in the English language, was *Joseph Andrews*, by Mr. HENRY FIELDING, a comic performance, which, though sometimes indelicate, and often exceptionable in its moral tendency, yet displays great wit, humour, learning, taste, and knowledge of mankind.[o] The next was *Pamela*, by Mr. SAMUEL RICHARDSON. This work introduced, and rendered popular, the mode of writing novels in the form of *Letters*, which has been since adopted by many, both in Great-Britain and on the continent of Europe. *Pamela* was succeeded by *Tom*

o Dr. BEATTIE tells us, that Lord LYTTLETON, once in conversation with him, after mentioning several particulars of POPE, SWIFT, and other wits of that time, when he was asked some question relating to the author of *Tom Jones*, began his answer with these words, "HENRY FIELDING, I assure you, had more wit, and more humour, than all the persons we have been speaking of put together."

Jones, which, though by no means pure in its moral tendency, is esteemed by the ablest critics, as the first performance of the heroi-comic kind that was ever written.[p] The same author next produced his *Amelia*, in which he imitated the epic poets, by beginning his narrative in the middle of the story. This plan was soon followed by RICHARDSON, in his *Clarissa Harlowe*, and *Sir Charles Grandison*, in both which the epistolary form of writing is retained, to which he seems to have been particularly attached.

The earliest productions of Great-Britain in this department of writing may be considered as her best. FIELDING and RICHARDSON have never been exceeded, and probably not equalled, by any novelists since their day, either in their own or any other country. Each of these authors may be said to have invented a new species of fictitious writing, and to have carried it at once to the highest point of improvement which it has ever reached. Their talents were different, and their works display this difference in a very strong light; but each attained a degree of excellence in his way, altogether unrivalled. FIELDING is humorous and comic; RICHARDSON more grave and dignified. They both paint with a masterly hand; but FIELDING is perhaps more true to nature than his rival. The former succeeds better in describing *manners;* the

p "Since the days of HOMER, says Dr. BEATTIE, the world has not seen a more artful epic fable than *Tom Jones*. The characters and adventures are wonderfully diversified; yet the circumstances are all so natural, and rise so easily from one another, and co-operate with so much regularity in bringing on, even while they seem to retard the catastrophe, that the curiosity of the reader is kept always awake, and instead of flagging grows more and more impatient, as the story advances, till at last it becomes downright anxiety. And when we get to the end, and look back on the whole contrivance, we are amazed to find, that of so many incidents there should be so few superfluous; that in such variety of fiction there should be so great probability; and that so complex a tale should be so perspicuously conducted, and with perfect unity of design." See the *Dissertation on Fable and Romance.*

latter in developing and displaying the *heart*. In plot and contrivance FIELDING has no superior; while RICHARDSON interests us less by his incidents than by the beauty of his descriptions and the excellence of his sentiments.[q] FIELDING is most at home when describing low life, and exhibiting the humorous effusions of coarseness and indelicacy.[r] RICHARDSON, on the other hand, is rather in his element when displaying the purity and sublimity of virtue.[s] The most eminent writers of different countries have paid homage to the merits of RICHARDSON as a novelist. His works have been translated into almost every language of Europe, and notwithstanding every dissimilitude of manners, and every disadvantage of translation, they have probably been more generally admired and eulogized than those of any other author in this species of composition. Though FIELDING has been less popular abroad, owing, perhaps, to the peculiar appropriateness of his pictures of English manners; yet, in several important attributes of fictitious narrative, he certainly transcends every other writer.

These distinguished and standard novelists have had many imitators, particularly in their own country; but none who have risen to the same degree

[q] Dr. JOHNSON, once in conversation with Mr. THOMAS ERSKINE, said, "Sir, if you were to read RICHARDSON for the story, your impatience would be so much fretted that you would hang yourself. But you must read him for the sentiment, and consider the story as only giving occasion to the sentiment."

[r] RICHARDSON used to say, that had he not known who FIELDING was, he should have believed him to be an *ostler*.

[s] RICHARDSON was a man of great purity and excellence of character. He was one of the best bred gentlemen of his day—habituated to genteel life only—amiable, benevolent, and unaffectedly pious; and no doubt endeavoured, though some have supposed without complete success, to construct all his narratives in such a manner as to give them an unexceptionable moral tendency. FIELDING was less pure in his principles and character, and had been more conversant at some periods with low life. In wit, humour, and knowledge of mankind, he has been pronounced inferior to no individual of modern times excepting SHAKSPEARE.

of excellence which they attained. Among the most successful of these was Dr. SMOLLET. His *Roderick Random* was written in imitation of *Tom Jones;* his *Humphrey Clinker*, the last and best of his works, after the manner of RICHARDSON; and his *History of Sir Launcelot Greaves*, with a view to the manner of CERVANTES.[t] These imitations are by no means without success, and certainly hold, in some respects, a very high place in the list of those fictitious writings which belong to the age under consideration. In exhibiting the peculiarities of professional character Dr. SMOLLET displays great powers. Perhaps no writer was ever more successful in drawing the character of seamen. Sometimes, indeed, his pictures border on the extravagance of *caricatura*, to which his satirical and cynical disposition strongly inclined him. His propensity to burlesque and broad humour too frequently recurs; and he is often indelicate and licentious to a very shameful degree. These remarks apply, in some measure, to most of his works; but to his *Peregrine Pickle*, and *The Adventures of an Atom*, the charge of indelicate description, and immoral tendency, is particularly applicable.

About the beginning of the eighteenth century M. LE SAGE, an ingenious French writer, published his *Gil Blas*, which appears to have been among the earliest works of the novel kind, published on the continent of Europe, that rank with the first class, or that are now held in much esteem. This performance was intended to be a picture of Spanish manners, and abounds with a great variety of incident and vivacity of description. It differs from *Tom Jones* in that it partakes less of the *Epic*

[t] It is obvious, from the definition before given of a *Novel*, that SMOLLET's *Sir Launcelot Greaves* does not strictly belong to this class; but rather falls under the denomination of *Romance*.

character, and may, with more propriety, be denominated a piece of "fictitious biography;" but resembles that celebrated work in wit, humour, and knowledge of the world. Soon after the publication of *Gil Blas*, the *Marianne* of MARIVAUX, on the same general plan, appeared. This work has a place assigned to it among the best novels in the French language. It discovers much acquaintance with human nature, and, under the veil of wit and incident, conveys much useful moral. Several other novels were written by the same author, but none of them are equal to this. They were succeeded by the fictitious writings of VOLTAIRE and DIDEROT, which were of different kinds, and possessed different degrees of literary merit; but chiefly designed, like most of the other writings of those far-famed infidels, to discredit Religion, both natural and revealed, and to destroy the influence of those institutions which have proved so conducive to human happiness. The novels of DIDEROT, in particular, abound with every species of licentiousness, and have a most pernicious tendency.

M. CREBILLON, the younger, distinguished himself by several works of fiction, executed in a new taste, which, though rendered highly interesting to many readers by their levity, humour, and whimsical digressions, are yet dangerous in their tendency, from a continual display of libertine sentiment. Madame RICCOBONI is another distinguished novelist of France, belonging to the period under review. Her *Fanny Butler*, and several other works, have been much read and admired; but have been also severely criticized, as containing much indelicacy, and even obscenity, in their narratives. M. MARMONTEL, of the same country, also presented the public, during the period under consideration, with a new species of fiction, in-

his *Moral Tales*, which, being less prolix than the common novel, combine instruction and amusement in a very pleasing degree. Many of them, however, it must be owned, are indelicate, and corrupting in their tendency, and ought to be considered as especially unfit to be put, as they frequently are, into the hands of children and young persons.

But, among all the French novelists, J. J. Rousseau unquestionably holds the first place as a man of genius. His *Nouvelle Heloise* is one of the most remarkable productions of the age. Eloquent, tender, and interesting in the highest degree; yet full of inconsistency, of extravagance, of licentious principle, and of voluptuous, seducing description. Poison lurks in every page; but concealed from the view of many readers by the wonderful fascination which is thrown around every object. Of the dangerous tendency of his work,[v] indeed, the author was himself fully sensible, and speaks freely. A circumstance which forms one among the many grounds of imputation against the morality of that singular man.[v]

The writings of the distinguished novelists above mentioned produced, in every part of Europe, an host of imitators and adventurers in the regions of fiction. To give even a general sketch of the numerous classes of those who have written under the

[v] The character of Rousseau perhaps exhibits the most singular and humiliating contrasts that were ever displayed in a human being. Exalted genius and grovelling folly alternately characterized his mind. At some periods he appeared to be under the influence of the most pure and sublime moral feelings; while, at others, the lowest propensities, and most detestable passions, possessed and governed him. Oftentimes, when speaking of morality and religion, one would imagine that sentiments of the most elevated benevolence and piety were habitual to him; but the tenor of his life, and, indeed, his own *Confessions* demonstrate, that an unnatural compound of vanity, meanness, and contemptible self-love, a suspicious, restless temper, bordering on insanity, and a prostration of every principle and duty, to his own aggrandisement and gratification, were the real predominant characteristics of this strange phenomenon in human nature.

titles of *Memoirs*, *Lives*, *Histories*, *Adventures*, &c. would fill a volume. Since the time of FIELDING the *Epic* form of novels has been more in vogue than before. *Plot* has become more fashionable, and is considered more essential to the excellence of their structure. During the last thirty years of the century under consideration, the countries most productive of respectable works in this species of composition were Great-Britain, France, and Germany.

Among the later British novelists, Dr. GOLDSMITH, Miss BURNEY (now Madame D'ARBLAY), Mrs. RADCLIFFE, Mr. MACKENZIE, Miss C. SMITH, and Dr. MOORE, undoubtedly rank highest. The *Vicar of Wakefield* will ever be read with new pleasure, as one of the finest, most natural, and most happily imagined moral pictures that was ever drawn. The author of *Evelina*, *Cecilia*, and *Camilla*, has marked out for herself a manner of writing in some respects new. If the reader do not find in her pages those bold and daring strokes which indicate the hand of a great and original genius; yet, in giving pictures of characters and manners, simple, natural, just, lively, and perfectly moral in their tendency, she has no equal among her contemporaries. The performances of Mrs. RADCLIFFE will be presently mentioned as belonging to a new and singular class of fictitious writings. The publications of Mr. MACKENZIE, which belong to this department of literature, have been much read, and have received high praise. Miss CHARLOTTE SMITH holds an honourable place among the ingenious and moral novelists of the age. Dr. MOORE, in describing *English manners*, has acquitted himself with high credit. But the works of the three last will probably never be mentioned as forming an era in the history of Bri-

tish novels, like those of FIELDING, RICHARDSON, SMOLLET, BURNEY, and RADCLIFFE.

To the class of novels, rather than to any other, belongs that remarkable production, the *Life and Opinions of Tristram Shandy*, by the Reverend LAURENCE STERNE. Notwithstanding the often repeated, and well supported charges, brought against this writer, of borrowing without acknowledgment, many of his best thoughts from preceding British and French authors,* yet his work is an *unique* in the history of literature. When it first appeared his readers were astonished at the singular farrago of obscurity, whim, indecency, and extravagance which it exhibited. The majority appeared to be at a loss, for a time, what judgment to form of its merits. But some of the friends of the writer, professing to comprehend his meaning, and disposed to place him high in the ranks of wit and humour, gave the signal to admire. The signal was obeyed; and multitudes, to the present day, have continued to mistake his capricious and exceptionable singularities for efforts of a great and original genius. But his genius and writings have certainly been overrated. That he possessed considerable powers, of a certain description, is readily admitted; that the Episodes of *Le Fevre* and *Maria* are almost unrivalled, as specimens of the tender and pathetic, must also be granted; but those parts of his works which deserve this character bear so small a proportion to the rest, and the great mass of what he has written is either so shamefully obscene, so quaintly obscure, or so foolishly unmeaning, that there are

* It seems to be now well ascertained that STERNE carried to a very great length, the practice of filling his pages with plunder from other writers. His freedoms of this kind with the works of RABELAIS, BURTON (author of the *Anatomy of Melancholy*) and CREBILLON, junior, have been particularly detected.

very few works more calculated to corrupt both the taste and the morals. That a man who bore the sacred office should employ his talents in recommending a system of libertinism; that he who could so well delineate the pleasures of benevolence and purity, should so grossly offend against both; and that volumes which abound with such professions of exalted philanthropy, should contain so many pages on which a virtuous mind cannot look but with disgust and indignation, are facts more atrociously and disgracefully criminal than the ordinary language of reprobation is able to reach."[w]

The last age is also distinguished by some productions of a singular kind, partaking of the extravagance of the ancient *Romance*, with some of the attributes of the modern *Novel*. The *Castle of Otranto*, by Lord ORFORD, better known by the name of HORACE WALPOLE, was one of the earliest and most remarkable productions of this kind. To the same class, though in many respects different, belong the works of Mrs. RADCLIFFE. This lady has formed for herself a department of fiction which may be called new. She has been justly styled "the SHAKSPEARE of romance writers," and displays a skill altogether unrivalled "in communicating terrific impressions from imaginary causes." But it is a remarkable peculiarity of her narratives, and greatly augments her title to praise, that, while the scenes which she exhibits abound with wildness and terror, yet they are so softened

[w] "What is called sentimental writing," says HORACE WALPOLE, "though it be understood to appeal solely to the heart, may be the product of a very bad one. One would imagine that STERNE had been a man of a very tender heart; yet I know, from indubitable authority, that his mother, who kept a school, having run in debt, on account of an extravagant daughter, would have rotted in jail if the parents of her scholars had not raised a subscription for her. Her son had too much sentiment to have any feeling. A dead *ass* was more important to him than a living *mother*." *Walpoliana*, vol. i.

down, and the mind so much relieved by beautiful description, and pathetic incident, that the impression of the whole seldom becomes too strong, and never degenerates into horror; but pleasurable emotion is the predominating result. It ought, likewise, to be mentioned to her honour, that the general tendency of her writings is favourable to virtue.[a]

To this mixed class also belongs the *Monk* of Mr. Lewis. While this production evinces talents, it must be considered as highly mischievous in its tendency, and as disgraceful to the character of the writer. In this department of fiction several German writers have made a conspicuous figure, especially the authors of the *Ghost Seer*, *The Victim of Magical Delusion*, and many others of a similar cast. The herd of low and impotent imitators of these works, with which Great-Britain, and other parts of Europe, have abounded for several years past, while they dishonour literature, and corrupt good morals, present a very curious picture of the taste and character of the age which gave them birth.

Among the peculiarities of the century under consideration may be mentioned the practice of conveying certain principles on the subjects of morals, religion, and politics, through the medium of fictitious narrative. Though many works of fiction had been formed, prior to this age, with the view to convey, to a certain extent, moral principles and impressions; yet the plan of attacking particular classes of men, or of doctrines through this medium, and of interweaving systems of morality, theology, or philosophy, through the pages of romances or novels, was seldom, if ever attempted before the eighteenth century.

[a] *The Mysteries of Udolpho*, the *Romance of the Forest*, and *The Italian*, are considered as the best performances of this lady.

One of the earliest productions of this kind was the *Adventures of Telemachus*, by Archbishop FENELON, which appeared at the beginning of the century. This work was intended to assert and exemplify those moral and political maxims which the pious and benevolent author had before taught to the Dukes of BURGUNDY and ANJOU, when committed to his tuition. The style of this celebrated poem[y] is generally admired, the fiction is ably conducted, and the moral is pure and sublime. Its extensive circulation and great popularity are well known. About the same time appeared the *Tale of a Tub*, one of the first publications of Dean SWIFT. The design of this allegorical fable was to expose certain abuses and corruptions in learning and religion, especially the latter; and it has been pronounced in felicity of wit, in force of satire, in copiousness of imagery, and in vivacity of diction, to exceed all the subsequent productions of the author.[z] About twenty years afterwards the same celebrated writer published his *Gulliver's Travels*, a performance which was, perhaps, more read than any other of the age. This satirical work is levelled at human pride and folly, at the abuses of learning, at the absurdity of theorists and projectors, and, especially, at the expedients and blunders of politicians. In this, as in the former, the fable is, in general, well conducted, the satire is keen, the description admirable, and the style at once easy, graceful, and vigorous. But the work is by no means free from gross faults. It discovers a prevailing fondness in the author for filthy allusions, and indecent nauseating descrip-

y *Telemachus*, though not written in *verse*, is so *poetical* in its character, that it may with propriety be denominated a *poem*.

z This praise must be received with qualification. The *Tale of a Tub* contains some images and allusions highly indelicate, and even grossly offensive. The author is also chargeable with treating serious things, in this performance, with too much levity.

tions. The *Voyage to the Houyhnhnms*, in particular, is very objectionable. Its satire is that of a misanthrope; its imagery and allusions those of a mind which delighted in filth; and its fiction altogether inconsistent and irrational.

In 1759 was published the *Rasselas* of Dr. JOHNSON, a philosophical tale, the design of which was to convey, in the oriental manner, useful lessons respecting the vanity of the world, the insufficiency of temporal things to secure human happiness, and the consequent importance of having a due regard to things eternal. This work has been translated into almost all the modern languages of Europe, and was one of the first moral effusions of that mind which afterwards laboured so much, and so well, to "give ardour to virtue, and confidence to truth." About the same time appeared the *Candide* of M. VOLTAIRE, written to refute the system of optimism, and probably with a wish, also, to discredit the belief of a superintending Providence. There is a considerable similarity in the plan and conduct of *Rasselas* and *Candide*. But the circumstances under which they were published precluded the suspicion of either having been indebted to the other.[a]

After the publication of the foregoing works, Mr. RIDLEY, in his *Tales of the Genii*, endeavoured to defend some of the peculiar doctrines of Christianity; while, on the other hand, these doctrines have been covertly attacked, in the *Life and Opinions of John Buncle, jun.* in the *Memoirs of several Ladies*, in *The Spiritual Quixote*, in *Dialogues of the Philosophers of Ulubræ*, and in several

[a] "I have heard JOHNSON," says Mr. BOSWELL, "say of these two works, that if they had not been published so closely one after the other, it would have been in vain to deny that the scheme of that which came latest was taken from the other." BOSWELL's *Life of Johnson*, vol. i. p. 282.

other works of fiction. That system of opinions usually styled the *New Philosophy*,[b] has been exhibited with great zeal, with a view to its defence, in the fictitious writings of DIDEROT, and many other French novelists; and in those of HOLCROFT, GODWIN, MARY WOLLSTONECRAFT, and MARY HAYS, of Great-Britain. The same delusive and mischievous system has been successfully attacked and exposed in *The Highlander*, by Dr. BISSETT; in the *Modern Philosophers*, by Miss HAMILTON; in the *Memoirs of St. Godwin*, in *The Vagabond*, in *Plain Sense*, and in various anonymous publications of the novel kind.

A number of other novelists, both in Great-Britain and on the continent of Europe, deserve to be mentioned, in recounting the conspicuous writers of this class, which belong to the eighteenth century. In Great-Britain female novelists have been numerous and respectable. Among these Mrs. BROOKE, Mrs. INCHBALD, Mrs. SHERIDAN, Mrs. YEARSLEY, Miss SEWARD, Miss WEST, and Miss WILLIAMS have attracted most attention, and been the objects of most applause. In France, out of a long list which might be enumerated, the fictitious writings of M. DE ST. PIERRE, Madame GENLIS, and M. FLORIAN, are worthy of particular distinction, especially on account of their pure moral tendency. In Germany the writers of romances and novels, during the age under review, were extremely numerous. Of these WIELAND is entitled to the first place. The appearance of his *Agathon* is represented as a grand epoch in the

b By the *New Philosophy* is meant, that system of doctrines concerning the constitution of man, and concerning morals and religion, taught by the author of the *Systeme de la Nature*, by HELVETIUS, and CONDORCET, and afterwards by several other celebrated writers, both of France and Great-Britain.

history of fictitious writing in that country.[c] Next to WIELAND, GOETHE is respectably known as a novelist, not only in his own country, but also throughout Europe. In a word, in every cultivated part of the European world novel writers have incredibly abounded, in modern times; but the author has so little knowledge even of the names of the principal works of this kind, and so much less of their respective merits and demerits, that he cannot undertake to speak of them in detail.

America has given birth to few productions in the department of romance or novel. Indeed, no work of this nature deserving respectful notice, had appeared in the United States prior to the year 1798, when Mr. CHARLES B. BROWN, of Philadelphia, published his *Wieland*, which has been since followed by *Ormond*, *Arthur Mervyn*, *Edgar Huntly*, and *Jane Talbot*, from the pen of the same author. Mr. BROWN discovers, in these several productions, a vigorous imagination, a creative fancy, strong powers of description, and great command, and, in general, great felicity of language. He has the honour of being the first American who presented his countrymen with a respectable specimen of fictitious history; and is certainly the first who succeeded in gaining much attention to his labours in this branch of literature.

It was before observed that the eighteenth century was the *Age of Novels*. Never was the literary world so deluged with the frivolous effusions of ignorance and vanity, in this form, as within the last thirty years. Every contemptible scribbler has become an adventurer in this boundless field of enterprise. Every votary of singular, and especi-

[c] LESSING, a German critic, of great learning and acuteness, pronounced *The History of Agathon* to be one of the finest efforts of genius in the eighteenth century; nay, he called it the *first* and *only* novel of the Germans, written for thinking men of classical taste.

ally of licentious opinions, has thought this a convenient mode of disguising and serving up his errors. The thirst for this species of composition is inconceivably ardent and extensive. All classes of persons in society, from the dignified professional character to the lowest grades of labouring indigence, seek and devour novels. These ephemeral productions are daily composed, translated, revamped, and reprinted, to indulge the growing demand. What will be the effect and the end of this morbid appetite; whether, like many other diseases, it will work its own cure, or whether it will go on to increase as long as human society shall exist, are questions to the solution of which the friend of human happiness looks forward with deep solicitude.

It has often been made a question, whether romances and novels form an *useful* kind of reading, or the contrary? This question, fifty years ago, was of little moment compared with the importance which it has lately assumed. At that period the number of novels was small, and the popular classes of them sustained, in general, a tolerably pure moral character. Since that time, the case is, unhappily, altered; their number has increased, their character is so changed, and the task of discriminating among them has become so delicate and arduous, that the question above stated must now be regarded as one of the most interesting that can be asked, concerning the literary objects of the day, by the wise and affectionate parent, the faithful guardian, or the mind of general benevolence. It may not be improper, therefore, before taking leave of this singular feature in the history of the eighteenth century, to offer two or three brief remarks on the general tendency of the class of writings under consideration.

That fictitious history, when constructed on proper principles, and executed in a proper manner,

may be productive of utility, is a position too plain to be doubted. It is one of the most powerful means of exciting curiosity, of awakening sympathy, and of impressing the understanding and the heart. Such fiction "may do more good to many minds than the solemnities of professed morality, and convey the knowledge of vice and virtue with more efficacy than axioms and definitions." On this ground it was, no doubt, that the infinitely wise Author of our religion frequently adopted the form of *parable* for communicating the most important truths to his hearers. And, on the same principle, some of the wisest human teachers have used the vehicle of lively and interesting fiction, known to be such at the time, for insinuating into the mind moral and religious lessons, which, in a different form, might not so readily have gained admittance. It is obvious, then, that to this kind of writing, *as such*, there can be no solid objection. Novels *may* be so written as to promote the cause both of knowledge and virtue. They *may* be constructed in such a manner as will tend to lead the mind insensibly from what is sordid and mean to more worthy pursuits, and to fill it with pure, elevated and liberal sentiments. Nay, it may be further conceded, that, out of the myriads of novels which have been composed, a *few* are, in fact, entitled to this character, and have a tendency to produce these effects.

But it is evident, that a kind of writing which, when wisely and ingeniously executed, may be conducive to the best purposes, may also, in the hands of the unskilful or the wicked, produce the worst effects. If an artfully conducted fiction be so well fitted to interest the curiosity, to awaken sympathy, and to impress the mind, then it follows that if this fiction be enlisted on the side of corrupt principle, or licentious practice, it must do

incalculable mischief. The question before us, therefore, must be solved by examining the influence of novels, not as they *might* and *ought* to be composed, but as they are found in *fact* to be written. We are not to assume for our standard the utility which *would* be derived from this species of writing, were it confined to the enlightened and virtuous; but the character and tendency of that heterogeneous mass which is daily accumulating from every quarter of the literary world.

What then is the general character of modern novels? The most favourable estimate that can be made stands thus:—Were the whole number which the age produced divided into *a thousand* parts, it is probable that *five hundred* of these parts would be found so contemptibly frivolous, as to render the perusal of them a most criminal waste of time. And though entirely destitute of character, yet so far as they are the objects of attention at all, they can do nothing but mischief. To devote the time and attention to works of this kind, has a tendency to dissipate the mind; to beget a dislike to more solid and instructive reading, and especially to real history; and, in general, to excite a greater fondness for the productions of imagination and fancy, than for the sober reasoning, and the practical investigations of wisdom.

Of the remaining *five hundred* parts, *four hundred and ninety-nine* may be considered as positively seductive and corrupting in their tendency. They make virtue to appear contemptible, and vice attractive, honourable and triumphant. Folly and crime have palliative and even commendatory names bestowed upon them; the omnipotence of *love* over all obligations and all duties is continually maintained; and the extravagance of sinful passion represented as the effect of amiable sensibility. Surely these representations can have no other ten-

dency than to mislead, corrupt and destroy those who habitually peruse them, and especially those who give them a favourable reception.

But this is not the worst of the evil. A portion of this latter class of novels may be charged with being seductive and immoral on a more refined plan. They are systematic, and, in some instances, ingenious and plausible apologists for the most attrocious crimes. In many modern productions of this kind the intelligent reader will recognize the following process of representation. Corrupt opinions are put into the mouth of some favourite hero, the splendour of whose character, in other respects, is made to embellish the principles which he holds, and the force of whose eloquence is used to recommend the most unreasonable dogmas. When this hero commits a crime, and when by this crime, according to the fixed law of the Divine government, he is involved in serious difficulty, if not lasting misery, the fashionable novelist endeavours to throw the blame on the religious and moral institutions of the world, as narrow, illiberal and unjust. When a woman has surrendered her chastity, and prostituted herself to a vile seducer; and when she suffers in her reputation and her comfort by such base conduct, all this is ascribed to the "wretched state of civilization," to the "deplorable condition of society!" Every opportunity is taken to attack some principle of morality under the title of a "prejudice;" to ridicule the duties of domestic life, as flowing from "contracted" and "slavish" views; to deny the sober pursuits of upright industry as "dull" and "spiritless;" and, in a word, to frame an apology for suicide, adultery, prostitution, and the indulgence of every propensity for which a corrupt heart can plead an inclination.

It only remains to speak of the *one thousandth* part not included in the classes already characterized. Of the greater portion of these the most favourable account that can be given is, that they are *innocent* and *amusing* compositions. But even with regard to a considerable number which have been commonly placed among the good and useful novels, a correct judge would scarcely be willing to pronounce them *innocent* without some qualification. After all these deductions, how small is the number of those which can be said to merit a perusal, or which can be considered as tending, in any tolerable degree, to enlighten the mind, or to promote the interests of virtue and happiness! So small, indeed, that out of the numerous volumes which a simple catalogue of the novels produced in the eighteenth century would fill, a single page would embrace all that could be with propriety recommended to the attention of the youthful mind.

Many novels which contain no licentious principles or indelicate descriptions, are still defective, inasmuch as they are not pictures of nature. When this is the case, though they be not chargeable with making a direct attack on the fortress of virtue, yet they are only fitted to mislead. To fill the mind with unreal and delusive pictures of life, is, in the end, to beguile it from sober duty, and to cheat it of substantial enjoyment. Were all the mischief presented to our view which has been done to thoughtless, unsuspecting minds, by fictitious writings of this character, it would be found to form a mass of crime and misery too great for the ordinary powers of calculation.

But it is not enough that the fiction be true to nature. It may in no case depart from the probable and natural; every line may be drawn with a strict regard to the original character designed to be represented; the most transient beholder may

Imperfect.
p. 177 - 360 duplicate
1 vol. 1. Ruth.
10.24.32

the globe, which were at first filled with elastic fluids; but the water afterwards finding its way into them, became lodged there; that some caverns have been formed by subterraneous fires; but that the most powerful cause of them has been the refrigeration of our globe; and that, though the surface of the earth has been brought to its present state by the action of water, it may, at the first moment of its formation, have undergone a very great degree of heat, as happens to a comet passing near the sun.

'*In* the formation of this theory, M. DELAMETHERIE discovered considerable ingenuity, and great learning. He can scarcely, however, be called an original writer. VOIGHT had held the doctrine of the aqueous *crystallization* of strata before him; and, indeed, the greater part of his system is made up of parts collected from different theorists. This is generally considered as one of those theories which are hostile to revelation.

Of a very different character is the theory of Mr. HOWARD, a British geologist, who, about the same time, published his opinions on this subject.[k] This gentleman is a firm believer in revelation, and his theory is intended to be perfectly consistent with the sacred history.

He supposes that the elements of all material substances were originally in a confused mass, called the abyss, without motion or animation; and that the present order of things was gradually, and at different intervals, drawn from it by means of laws impressed by the power of the Creator. The earth, of which we now behold the ruins, was originally constructed with its poles perpendicular to the equator; the centre of gravity was the cen-

[k] *Thoughts on the Structure of the Globe, and the Scriptural History of the Earth, and of Mankind*, &c. by PHILIP HOWARD, Esq. 4to. London, 1797.

tre of the globe; and the year consisted of three hundred and sixty days. At that time, the irregularities of the earth's surface being less considerable, and the distribution of land and sea being more equal, the atmosphere was more temperate and salubrious, and, of course, the life of man was prolonged greatly beyond its present limits. The termination of this "golden age" might have been effected by the proximity of a *Comet*, condensing the vapours of the atmosphere, and attracting the subterraneous waters, which, bursting through the exterior surface, precipitated indiscriminate portions of the primitive earth into the cavities below. The more perfect consolidation of the globe in the southern hemisphere changed the centre of gravity, which produced a proportionate deviation from the plane of the equator. The ocean did not, at once, however, sink to its present level. The posterior accession of waters from seas hitherto inland, may have crushed down other inferior vaults, and finally settled its lowest degradations. As the land became thus elevated above the bed of the ocean, the cold became more intense, the vicissitudes of climate were more severely felt, and the life of man suffered a proportionate abbreviation.

Mr. HOWARD was succeeded by M. P. BERTRAND, of France, who next proposed a theory, much less philosophical, and in every respect unworthy of a sober mind.[1] This wild and impious theorist contends, that water was the original substance of our earth, but that this water, before motion and heat were communicated to it, was a solid mass of ice. Such was the condition of the globe we inhabit, when one of the larger order of comets, after long wandering about, finally ended its career, and fulfilled its destination by striking

[1] *Nouveaux Principes de Geologie.* Par P. BERTRAND, &c. 8vo. Paris, 1798.

this frozen mass, breaking it in pieces, and mixing its own materials with those of the till then lethargic body. These fragments acquired by this impulsion a common projectile motion, in the same plane, and in the same direction. The light, heat, and life brought by this energetic comet, mixing with the original ice, formed new combinations, afforded causes of internal motion, and began, by these means, a new order of things, which M. BERTRAND calls vital and organic constitution, and which he supposes to be different in every planet, since the density is different. The ice, by means of heat, as a solvent, being reduced to primordial matter, all ancient combinations were destroyed, and room was given for new combinations of a different kind. The first result of this regeneration was the production of calcareous earth, from which species every other kind of earth is formed. This deposition of calcareous matter being equal every where, produced a regular nucleus in our globe, equally covered with water, and free from valleys and mountains. In this situation, according to our theorist, a new comet of high degree approached near enough to our globe to influence its destinies; by the force of its attraction it changed and slackened both the annual and diurnal motions of the planet, displaced the axis and the equator, altered likewise the points at which the spheroid was compressed or elevated, and by these means displacing the waters, caused the emersion of the first continents. The surfaces of these continents became unequal, from the change of level, and from the sudden retreat of the waters. The whole mass, however, was yet composed of calcareous matter. The first action of atmospherical powers, and of solar rays, occasioned a sudden irruption of all the vital forces, so long suspended and concentered. In this ex-

plosion of life every particle of native soil was *vivified*, and numerous races of vegetables and animals were produced, in such numbers and of such sizes, that putrefaction and fermentation ensued. Some meteoric phenomena having set fire to this monstrous heap of putrefied bodies, the horrid conflagration extended every where, even under the sea, and was the cause of most tremendous earthquakes, which broke all the strata, which, till then, had been horizontal, and threw them in every direction. The ashes of this almost universal conflagration being the most saline of the then existing substances, formed a *lixivium*, which, filtering through the interstices of the broken strata, produced the *quartz*, and other similar substances which now compose them. Wherever this lixivial and quartzeous flux deposed large quantities of matter, *granite* was formed; and by a different modification of the same materials, other mineral bodies were composed. This great conflagration occasioned hollows and cavities of incalculable dimensions, which being laid open by some violent shock, were filled by waters of the ocean, by which sudden retreat of the watery element, large portions of the globe were left dry, and formed new continents, while parts of the old continents fell into hollows, and disappeared. Besides our earth, which has undergone this series of revolutions, an indefinite number of like cold lifeless masses exist, resting invisible in darkness and inactivity, waiting for some favourable circumstance, which may bring them to light, life, and motion.

Such are the outlines of a theory, which, though exhibited and defended with some talents, may be considered as the most wild, and as involving the most palpable opposition to every received principle, that has yet been presented to the public.

Indeed, its unreasonableness and extravagance are so great, that it seems to have attracted but little respectful attention among any class of philosophers.

This theorist was succeeded by another, of the same name, but a much more sober and rational inquirer. In 1799 M. L. BERTRAND, of Geneva, published a work[m] which was intended to account for the phenomena of the globe we inhabit. This gentleman supposes, with Dr. HALLEY, that there is a magnetic nucleus enclosed and suspended in a hollow space, in the centre of the earth. This has a rotatory motion of its own, and an inclination of its magnetic axis to the axis of rotation, thus causing an oscillatory motion in the magnetic poles. While things were in this situation, he supposes that a *Comet* of ordinary size and character approached our earth, displaced the nucleus from the centre, removed it toward one side, and changed the centre of gravity of the earth. These circumstances occasioned the derangement of the seas, their removal to other parts of the globe, the immersion of old, and the emersion of new continents. This theorist is a disciple of M. DE SAUSSURE,[n] and the principal design of his work seems to have been to show the possibility of that sudden retreat of the ocean which his master believed in and taught, and to account for that event, and the subsequent elevation of the land which before formed its bottom.

The last person to be mentioned, as having adventured in this ample field of speculation and

[m] *Renouvellemens Periodiques*, &c. Par L. BERTRAND, &c. 8vo. 1799.

[n] M. DE SAUSSURE had promised to give a geological system, at the end of his *Travels* over the *Alps*; but after many years, he contented himself with informing the public, that the result of his investigations induced him to believe, that the whole of our continents had been formed under the sea, had been arranged by its action, and were left dry by a precipitate retreat of its waters.

inquiry, is Mr. KIRWAN, whose name has been so frequently, and so respectfully mentioned in the foregoing pages. This gentleman, with that learning which has enabled him to prosecute his numerous investigations in so enlightened a manner; with that judgment and penetration which render his inquiries so valuable; and with that spirit of patient and accurate observation which is so indispensably necessary to a successful developement of this subject, has framed a theory of the earth, which is perhaps the most rational and probable extant.*

Mr. KIRWAN believes, that the superficial parts of the globe were originally in a soft liquid state, proceeding from solution in water, heated at least to 33°. and possibly much higher; that this menstruum held in solution all the different earths, the metallic, the semi-metallic, the saline, and the inflammable substances; that in this fluid its solid contents coalesced and crystallized, according to the laws of elective attraction; that these were deposited in strata according to the predominant proportion of the ingredients; that by this crystallization of these immense masses a prodigious quantity of heat must have been generated, and increased by the decomposition of the water, intercepted in the precipitated ferruginous particles, and by the disengagement of inflammable air, even to incandescence, the oxygen uniting with the inflammable air, and bursting into flame; that this stupendous conflagration must have rent and split, to an unknown extent, the solid basis on which the chaotic fluid rested; that from the heated chaotic fluid must have been extricated the *oxygen* and *mephitic* airs, which gradually formed the atmos-

* *Geological Essays*, by RICHARD KIRWAN, Esq. F.R.S. &c. &c. 8vo. 1799.

phere; that from the union of oxygen with ignited carbon, proceeded the *carbonic acid*, the absorption of which, as the chaotic fluid cooled, occasioned the crystallization and deposition of *calcareous earth*. Mr. KIRWAN also believes, that the immense masses thus crystallized and deposited, formed the primitive *mountains;* that the formation of *plains* took place from the subsequent deposition in the intervals of distant mountains, of matters less disposed to crystallize; that the level of the ocean gradually subsided, leaving large and elevated tracts of land uncovered; that the *creation of fish* was subsequent to the emersion of the land; that after this retreat of the sea, the earth soon became covered with vegetables, and peopled with animals, being in every respect fitted to receive them; that the gradual retreat of the waters continued until a few centuries before the general deluge; that this event was occasioned by a miraculous effusion of water both from the clouds and from the great abyss, the latter originating in and proceeding from the great southern ocean below the equator, and thence rushing on to the northern hemisphere, spreading over the arctic region, and descending again southward; that during this elemental conflict, the carbonic and bituminous matter ran into masses no longer suspensible in water, and formed *strata of coal;* and that other substances, by the combination or decomposition of their respective materials, formed various other kinds of mineral bodies, as *basaltic masses*, *calcedonies*, *spars*, &c.

Besides the *Theories* of which an attempt has been made to give a brief view, many others, less distinguished, have been offered to the world, during the period under review. Among these it would be improper to pass in silence the geological systems of SCHEUCHZER, PLUCHE, ENGEL, LULOLFF,

PYE,[p] WALLERIUS,[q] BAILLY, FRANKLIN,[r] DARWIN,[s] and several others no less eminent. Some of these gentlemen have adopted theories, nearly agreeing in their outlines with several of those which have been stated; and to attempt a further detail of such as have any considerable claims to originality, would be to present the reader with new vagaries of imagination, rather than with sober inquiries of philosophy.

But although there has been, in modern times, as appears from the foregoing pages, a wonderful variety of fanciful productions, under the name of geological theories, we are by no means to imagine that little has been usefully done in this department of natural history. Amidst all the splendid rubbish with which it has been incumbered, some precious treasures have been brought to light. Amidst the speculations which have *darkened counsel*, large additions have been made to our knowledge of this important subject. These may be briefly summed up in the following particulars.

The *materials* for the formation of a correct and rational theory of the earth have been greatly augmented during the last age. Enlightened mineralogists, practical miners, and patient chemical experimenters, have been engaged, throughout the century, in making accurate observations; in visiting foreign countries; in exploring the bowels of the earth; in comparing the strata of every portion of the globe; in examining their form, direction, extension, and connection; in analyzing their component parts; and in collecting a multitude of facts, which have all tended to throw light on the

p *The Mosaic Theory of the Solar System*, by SAMUEL PYE, M. D. 4to. 1765.

q *Meditationes Physico-chemicæ de Origine Mundi.* 8vo. Stockholm, 1779.

r *Conjectures concerning the Formation of the Earth*, in a letter to the Abbe SOULAVIE. See *Americ. Philos. Trans.* vol. iii.

s See the *Botanic Garden: Additional Notes* to part i.

origin and history of our planet. By means of the useful discoveries which these inquirers made, we have been furnished with weapons for beating down false theories, and with information enabling us to pursue our investigations further, and with more advantage. "In this magnificent display of the internal arrangement of the globe," says Mr. KIRWAN, many philosophical observers acquired distinguished eminence from tedious, laborious, painful, but successful exertions. TILAS, GMELIN, CRONSTEDT, FERBER, PALLAS, CHARPENTIER, BORN, WERNER, ARDUINO, DE LUC, SAUSSURE, and DOLOMIEU, are names consecrated to immortality.[t]

"So numerous, indeed," says the same respectable writer, "have been the more modern geological researches, that since the obscuration or obliteration of the primitive traditions, strange as it may appear, no period has occurred so favourable to the illustration of the original state of the globe, as the present, though so far removed from it. At no period has its surface been traversed in so many different directions, or its shape and extent, under its different modifications of earth and water, been so nearly ascertained, and the relative density of the whole so accurately determined, its solid constituent parts so exactly distinguished, their mutual relation, both as to position and composition, so clearly traced, or pursued to such considerable depths, as within these last twenty-five years. Neither have the testimonies that relate to it been ever so critically examined and carefully weighed, nor, consequently, so well understood, as within the latter half of the past century."[v]

[t] *Geological Essays. Preface.* It is a curious fact, that while some of these celebrated inquirers embraced geological principles unfriendly to revelation, they have all brought to light facts, and given views of the subject, which remarkably confirm the sacred history.

[v] *Geological Essays*, p. 3, 4.

Difficulties have been lately removed, which were once supposed, by some, to militate strongly against the *possibility* of a *general Deluge*. Early geologists, for want of accurate information, supposed that all the waters of the globe were not sufficient to cover the whole earth, to such a depth as the sacred historian describes. It was asserted that the mean depth of the ocean did not exceed a quarter of a mile, and that only half of the surface of the globe was covered by it. On these data, Dr. KEIL computed that *twenty-eight* oceans would be requisite to cover the whole earth, to the height of *four miles*, which he judged to be that of the highest mountains; a quantity, which, at that time, was utterly denied to exist. But further progress in mathematical and physical knowledge has since shown, that the different seas and oceans contain at least *forty-eight* times more water than they were supposed to do, and much more than enough for the extent ascribed to the deluge in the sacred history.[a]

While difficulties which were supposed to render the deluge *impossible* have been removed, by the investigations of modern philosophers, many facts have been, at the same time, brought to light, showing the *probability*, and even *certainty* of that mighty inundation. In every valley and mountain support for revelation has been found. *Marine*

[a] M. DE LA PLACE (whose mathematical and astronomical skill will not be questioned, and whom none will suspect of a disposition to press facts unduly into the support of revelation) has demonstrated, by a strict application of the theory of tides, to the height to which they are known to rise in the main ocean, that a depth of water reaching only to *half a league*, or even to *two* or *three leagues*, is utterly incompatible with the Newtonian theory, and that no depth less than *four leagues* can possibly be reconciled with the phenomena. It will be readily perceived that this is much more than the Mosaic history requires. The extent of that part of our globe which is covered by water is now known to be far greater than KEIL supposed it; it being ascertained that nearly two-thirds of the surface of the earth are in this situation. KIRWAN'S *Geological Essays*, p. 66, 67.

shells have been discovered in situations so elevated, and under circumstances so remarkable, as to prove that they were left there by a flood extending over the whole globe; and what confirms this conclusion is, that shells, peculiar to different shores and climates, very distant from each other, have been found in promiscuous heaps, plainly showing that they could have been brought together only by an extensive inundation. The bones of *elephants* and of *rhinoceri* have been found, in a multitude of instances, far distant from the regions in which they are found to live, and where, from the nature of the climate, they could never exist in the living state: and between the climates which they might have inhabited, and the places in which they are now found, too many mountains intervene to suppose them carried thither by any other means than a *general deluge*.[w] The most patient and accurate examinations of detached mineral substances, and of the strata of the globe, which late inquirers have made, afford every reason to believe, that the earth was, for a considerable time, wholly overflowed with water. And, to crown all, as voyagers and travellers have explored new regions of the earth, they have found, every where, the indications of geological phenomena confirmed and supported by the notices of tradition. Accordingly, it is very remarkable, that a great majority of modern theorists have embraced the *Neptunian* doctrines; and even such of them as rejected the Mosaic account of the deluge have been compelled to seek for other means of immerging the present continents in the ocean.[x]

[w] KIRWAN's *Geological Essays*, p. 54, *et seq.*

[x] M. BAILLY, of France, at first embraced the theory of the earth proposed by BUFFON; but finding the evidence arising from the investigations of natural history, and from universal tradition, so strongly to attest the reality of the general deluge, he abandoned that delusive theory, and

Finally, the researches of modern geologists have given abundant confirmation to the sacred history, not only with respect to the general *deluge*, but also with regard to the *age* of the earth.[x] Early in the century, and, indeed, until within a few years, several geological phenomena were considered, by superficial inquirers, as indicating that the creation of the globe we inhabit was an event much more remote than the sacred history represents it; and some theorists even went so far as to profess a belief that it existed from eternity. These opinions were kept in countenance only as long as geology was in its infancy. Every succes-

took refuge in another system, in which he recognizes the deluge, and only contends for placing it as far back as three thousand five hundred years before Christ.

[y] Sir WILLIAM HAMILTON and Mr. FERBER particularly applied themselves to the study of *volcanoes*, without giving general systems. They affirmed that the indications furnished by subterraneous and volcanic phenomena, and particularly by the beds of lava, announce the antiquity of the earth to be far greater than the sacred history represents it. But they did not advert to the fact, that all lavas are not composed of the same substance. All have not undergone the same degree of vitrification, and of course are more or less susceptible of decomposition. And even when their composition is the same, much depends on the state in which they are emitted. When poured from the crater in the fermentation of boiling liquefaction, a *scoria* or dross rises, like broken waves on the surface, and is easily pulverized by the air and weather. When the heat is less violent, or when the torrent is cooled in its course, an even and almost impenetrable surface defies the influence of the atmosphere. These philosophers do not recollect that *Herculaneum*, the date of whose destruction is well known, is covered by nearly *seventy* feet of lava, interspersed with *seven* distinct seams of friable earth; and the whole covered with good soil; yet all this has been the undoubted production of less than *eighteen hundred years*. HOWARD'S *Thoughts on the Globe.*

In like manner, Count BORCH, in his *Letters on Sicily and Malta*, professes to believe that *Ætna* is at least eight thousand years old, which he infers from the beds of vegetable earth which he discovered between different beds of lava. Yet M. DOLOMIEU, who has greatly distinguished himself by the acuteness and success of his geological inquiries, expressly tells us that such earth *does not exist* between the beds of lava of which the Count speaks, and thus destroys the foundation of his whole argument. But even if vegetable earth were found in the circumstances supposed, no conclusion relative to its age could fairly be deduced from this fact, as some lavas become fertile much sooner than others. The Chevalier GIOANNI, in 1787, found lavas, projected in 1766, in a state of vegetation, while other lavas, known to be much more ancient, still remained barren. KIRWAN'S *Geological Essays*, p. 104, 105.

sive step which has been lately taken in the improvement of this science has served to show their fallacy. The investigations of the latest and most accurate philosophers have afforded proof little short of demonstration, that the earth, at least in its present form, cannot have existed longer than appears from the Mosaic account; the absolute falshood of many positive assertions, and specious inferences, hostile to the scripture chronology, has been evinced; and thence has arisen a new presumptive argument in support of the authenticity of that Volume, which contains the most ancient, and the most precious of all records.

METEOROLOGY.

The natural history of the *atmosphere* began to be cultivated, as a science, in the seventeenth century. The ancients, for want of the necessary instruments, were almost wholly unacquainted with it. But soon after the invention of the *thermometer* and the *barometer*, the learned men of Europe began to avail themselves of the manifest advantages which these instruments gave them, in studying the origin, nature, and effects of those changes which take place in the atmosphere, especially with respect to heat and cold, motion and rest, moisture and gravity: still, however, from the small number of the meteorological observations made by accurate philosophers; from the want of an extensive comparison of the results of different observations; and especially from the low state of those sciences most intimately connected with meteorology, little progress had been made in this department of knowledge prior to the commencement of the century under review. And though it must be acknowledged that this subject is one of those which are still far from

being satisfactorily developed, yet so much has been done, during the period under consideration, to throw light upon it, and so many observations and discoveries have been made, either directly or remotely relating to it, that it has, within a few years, assumed an aspect more interesting, practical, and approaching to the form of a system, than ever before.

At the commencement of the eighteenth century, the *ascent of water* in the atmosphere, in the form of *vapour*, had been but little investigated, and was very imperfectly understood. NIEUENTYT and others had taught that the particles of fire, by adhering to those of water, made up *moleculæ*, or small bodies specifically lighter than air. Dr. HALLEY supposed that by the action of heat, the particles of water are formed into hollow *spherules*, filled with a finer air, highly rarified, of less specific gravity than the atmosphere, and, of course, disposed to rise in it. While Dr. DESAGULIERS thought that the ascent of aqueous particles was owing to their being converted into an *elastic steam*. Such was the state of opinions with regard to this fact, when Dr. HAMILTON, of Great-Britain, undertook the investigation of the subject, and proposed a new theory. He held that evaporation is the gradual *solution of water in air*, and that the former is suspended in the latter in the same manner as salts, or other soluble substances are suspended in aqueous fluids.[z] The same doctrine had been, in substance, suggested before by several philosophers, particularly by M. LE ROY, in 1751; by Dr. FRANKLIN, in 1756; and by MUSCHENBROLCK, in 1769.[a] But though these and

z *Essay on the Ascent of Vapours*, &c. This Essay was first read before the Royal Society in 1765, and was afterwards published, with others, under the title of *Philosophical Essays*, by HUGH HAMILTON, D. D. F. R. S.

a Bishop WATSON's *Chemical Essays*, vol. i. p. 317.

some others, had spoken of the solubility of water in air, before Dr. HAMILTON, yet he was the first who treated the subject with precision, or who applied it systematically to the explanation of meteorological phenomena. This opinion was afterwards, in substance, adopted by Dr. HUTTON, and exhibited in his ingenious *Theory of Rain*,[b] and continued for a number of years to be the popular doctrine.

In 1786, M. DE LUC, of Geneva, published a new theory on this subject,[c] which has been since generally considered as superseding the doctrine of HAMILTON and HUTTON. Observing that evaporation takes place in *vacuo*, as well as in the open air, M. DE LUC rejected the opinion that vapour is the solution of water in air, and taught that this effect is produced by the chemical *combination*, or *union* of the particles of *heat* with those of water. Hence he accounted for the great loss of sensible heat, in every process of evaporation, according to the celebrated doctrine of *latent heat* taught by Professor BLACK. He made a number of curious observations and experiments on this subject, by which he ascertained that water, after this ascent in the atmosphere, does not exist in a sensibly *humid* form; whence he concluded that it passes into a form entirely different from itself, and probably becomes air. This doctrine is evidently founded on the mutual convertibility of water into air, and the reverse, discovered by CAVENDISH and some later chemists. The same theory, of the solution of water in heat, was also embraced by M. LAVOISIER, and appears to be now the most fashionable mode of interpreting the phenomenon in question.

b Transactions of the Royal Society of Edinburgh, vol. i.

c See *Recherches sur les Modifications de l'Atmosphere*, par J. A. DE LUC. 8vo. 2 vols. Geneva. 1772. And also *Idees sur la Meteorologie*, a more full and satisfactory work, by the same author. 1786.

Besides forming and giving to the world this ingenious theory of evaporation, M. De Luc has also rendered essential service to the science of meteorology, by his patient and persevering observations on the comparative degrees of moisture in the atmosphere, in different situations. On this subject he has brought to light a number of facts equally new and interesting. His countryman, M. De Saussure, has also laboured very successfully in the same field of inquiry;[d] and though not always with an entire coincidence of opinion and result, yet with sufficient agreement on most important points. There are probably no two individuals to whom the scientific world is more indebted for the minuteness, the accuracy, and the success of their meteorological investigations, than to these philosophers of Geneva.

About the year 1755 Mr. Eeles first suggested the probable influence of *Electricity* in the process of evaporation. He taught that there was but one way of altering the specific gravity of the particles of water, so as to render them lighter than air, and, consequently, buoyant in that fluid, viz. the adding to each particle a sufficient quantity of some fluid which possesses much greater elasticity and rarity than air. Such a fluid is *Electricity;* which, therefore, he supposed to have a very important agency in the ascent of vapours. The influence of the electric fluid in producing changes in the atmosphere has been since further investigated, and the principles on which it operates more satisfactorily developed, by Franklin, De Saussure, Bertholon, and other modern inquirers.

Closely connected with the doctrines which have been taught on the subject of evaporation are the several theories of *Rain* to which modern

d *Essai sur l'Hygrometrie*, 4to. 1783.

times have given birth. The phenomenon of vapour becoming condensed, or of air in any manner producing water, and falling in the form of *rain*, *hail*, and *snow*, has long been considered a point of difficult solution among meteorologists. All the suppositions to account for this fact were, for a considerable time, insufficient and unsatisfactory; and even now the subject is far from being fully unfolded. At one time the condensation and fall of vapour, in different forms, has been accounted for by referring to the influence of *Electricity;* at another, by considering water as held in solution in air, and *precipitated*, by streams of air of different temperatures being brought into contact, or a state of mixture; and, at a third, by supposing this event to be produced by the conversion of oxygen and hydrogen gases into water, according to the experiments of CAVENDISH, LAVOISIER, and others. These several opinions have been successively popular in the course of the century, and will be found amply detailed in the writings of HAMILTON, HUTTON, DE SAUSSURE, and DE LUC, on this subject. But, after all, it must be acknowledged, that great difficulties attend every theory hitherto formed with a view to solve this question. Insomuch that the greatest meteorologist of the age, M. DE LUC, after making a more patient, accurate, and thorough inquiry into the subject than was ever accomplished by any other man, seems to be at a loss to furnish a satisfactory account of the matter. He therefore contents himself with concluding, that the air, formed by the decomposition and ascent of water, becomes reconverted into that fluid, by some unknown cause, or by a combination of causes, and falls in the form of rain, hail, or snow, according to the circumstances in which the reconversion takes place, or the state

of the regions through which it passes in its descent.

Much light has been thrown, in the course of the last century, on the varieties of *temperature*, in different seasons and latitudes. On this subject Dr. HALLEY made some instructive observations. A few years afterwards, M. DE MAIRAN, an ingenious French meteorologist, by a series of observations and experiments, discovered that the rigour of the winter's cold is tempered by the heat imparted to the atmosphere by the earth itself; and thus explained by what means the winter's cold is rendered so moderate as to make the colder climates inhabitable. On the ground of this discovery he calculated, with great sagacity, the *maximum* and *minimum* of heat in every latitude, for the summer and winter solstices; and though his calculations are not always found to coincide with facts; yet they have proved highly instructive and useful to subsequent inquirers. DE MAIRAN was followed by M. MAYER, the celebrated astronomer of Goëttingen, who, in a few pages, did more to solve the difficulties that occurred on this subject than any of his predecessors. He first pointed out to meteorologists the necessity of following the method long used by astronomers; namely, of first finding the mean of certain large periods, as years and months, gradually correcting the errors that may be discovered, and afterwards finding an equation whereby to correct aberrations arising from height and situation. He even proceeded so far as to give an equation to correct the effects of height, which in many cases approximates very nearly to the truth; but the equation by which, knowing the mean annual temperature of two latitudes, the mean annual temperature of every other latitude, and even of the pole itself, may be

found, has been pronounced his most important discovery.'

Mr. KIRWAN has carried the discoveries and improvements of MAYER considerably further. By means of the equation formed by the philosopher of Goëttingen, but rendered much plainer and more simple, he has calculated the mean *annual* temperature of every degree of latitude between the equator and the pole. He has also calculated the mean *monthly* temperature of that part of the ocean which lies between the eightieth degree of northern, and the forty-fifth of southern latitude, extending westward as far as the *Gulph Stream*, and to within a few leagues of the coast of America; and for all that part of the Pacific Ocean reaching from 45°. north to 40°. south latitude, and from 20°. to 275°. east longitude. This immense tract of ocean he calls the *standard*. From these calculations he has deduced a number of important principles, of great practical utility, and which place him among the most distinguished meteorologists of the eighteenth century.

The origin, qualities, and laws of *Winds* have been diligently studied, during the period under consideration, but not with the same success that has attended inquiries into other branches of meteorology. No satisfactory theory has yet been formed on this subject, owing to the want of observations sufficiently numerous, of the exact times and places where they begin and cease to blow, but chiefly to our imperfect knowledge of the means by which great regions of air are either suddenly produced or destroyed. The discoveries of modern chemists evince that air is perpetually subject to increase and diminution, from its combination with other bodies, or its evolution from

' See *An Estimate of the Temperature of different Latitudes*, by RICHARD KIRWAN, *Esq.* F. R. S. &c.

them; and, therefore, that a just theory of winds, whenever it shall be formed, will be found to rest upon chemical principles, there is much reason to believe. But though little has been done in anemology, in the way of scientific reasoning, much has been accomplished, during the period under review, in the way of patient observation, and the establishment of numerous important facts. For these we are chiefly indebted to Dr. HALLEY, M. DE LA BAILLE, M. PREVOST,[f] M. DE LA COTTE, Mr. DALTON,[g] and several of the distinguished meteorologists before mentioned, especially M. DE LUC, and Mr. KIRWAN. To these may be added Dr. FRANKLIN, Dr. MADISON, Dr. CUTLER, and several other American gentlemen, who have made and recorded valuable observations on the winds in America;[h] and a long catalogue of modern navigators and travellers, who have contributed rich materials, brought from the most distant parts of the globe, toward forming a systematic view of anemology.[i]

Besides the great meteorologists whose names have been already mentioned, very important services have been rendered to this branch of natural history, by BOUGUER, DU CARLA, HALES, WARGENTIN, MARIOTTE, REYER, TOALDO, PRIESTLEY, and many others, to whom due honour is given by various writers on the subject. The volumes of *memoirs* published by the scientific academies, in different parts of Europe, during the century under review, contain rich treasures of meteorological information, contributed by numerous hands.

f Sur les Limites des Vents Alizes.

g Meteorological Observations, 8vo. 1793.

h For the observations of the above-named American gentlemen, and several others, see FRANKLIN's *Philosophical Letters*, and the volumes of *Transactions* which have been published by the *American Philosophical Society*, and the *American Academy of Arts and Sciences.*

i For some ingenious remarks on anemology, see *Botanic Garden*, additional notes.

Modern times have given birth to various inventions for measuring the force and velocity of winds. Among these the most remarkable are the *Wind-gage*, the *Anemoscope*, and the *Anemometer*; in the construction and improvement of which Dr. LINN, Mr. PICKERING, and others, have rendered important service to meteorology. Numerous attempts have also been made, during the period under review, to construct *hygrometers*, or instruments for indicating the comparative states of the atmosphere, with respect to *moisture* and *dryness*. And though much imperfection is found to attend every instrument hitherto devised for this purpose, yet gradual approximations have been made toward those of a more perfect and useful kind. Among these Mr. SMEATON's *hygrometer*, formed of an *hempen cord*, boiled in salt water; M. DE SAUSSURE's, made of *hair*, prepared by maceration in alkaline ley; Mr. COVENTRY's, consisting of *dryed paper*; and M. DE LUC's, of *ivory* and *whalebone*, deserve to be distinguished; especially that formed of *whalebone* by M. DE LUC, which is generally considered as the most accurate and convenient hygrometer now in use.

That remarkable meteorological phenomenon, usually called the *Aurora Borealis*, appeared with peculiar frequency, in the course of the eighteenth century. Dr. HALLEY tells us[j] that it was seen but once in the seventeenth century, viz. in 1621, when it attracted considerable attention, particularly in France, where the celebrated GASSENDI observed it, and gave it the name which it now bears. After this there is no record of any such appearance until 1707, when a small one was seen. But in 1716 an uncommonly brilliant one appeared, which commanded universal attention, and was

[j] *Philosophical Transactions*, No. 347.

considered by the vulgar as a most portentous event. Since that time these meteoric phenomena have been so frequent and familiar, that they have, in a great measure, ceased to attract attention, or to be recorded as remarkable events.

Modern philosophers have ascertained many facts with respect to the *Aurora Borealis*, which were, of course, unknown to those who lived in the seventeenth century, and probably to all who lived before them. It seems now to be generally considered either as an *electrical* phenomenon, or produced by the *combustion of inflammable air*, either with or without the intervention of the electric spark. For the observations which have been made upon this kind of meteor, and the principles with respect to it which appear to be established, we are under particular obligations to Dr. HALLEY, M. MAIRAN, Signor BECCARIA, Dr. FRANKLIN, Dr. FORSTER, M. GMELIN, M. ÆPINUS, Dr. HAMILTON, of Dublin, Mr. CANTON, Dr. BLAGDEN, Mr. DALTON, and others. The last named gentleman is supposed to have given the most satisfactory account of the subject.

HYDROLOGY.

The natural history of *Waters* holds so important a place among the objects of human knowledge, that it has, in almost every age, attracted the attention of those who loved to study nature: but it is only within the century under review that any thing on this subject, deserving the name of science, or a correct acquaintance with principles, could be said to exist. The accessions to Hydrology in modern times have been very great. The improvements in Chemistry, in Mineralogy, and in many other sciences, have contributed much

to enlarge our knowledge in this department of philosophy.

The discovery of the *composition of water* was mentioned in a former chapter. The great augmentation of our knowledge, with respect to the doctrines of *tides*, during the period under review, was also noticed in a preceding division of this work. To repeat what has been said on these and some other subjects before discussed, and which might, with propriety, be introduced under this head, is altogether unnecessary.

But among the discoveries and improvements of the last age, which belong to this head, the most important are the numerous and very useful investigations of *Mineral Waters*, which have been pursued with great success during this period. It is evident that our knowledge of the properties and effects of mineral waters must, in general, keep pace with the progress of chemical science; for which reason the early writers on this subject were, in a great measure, destitute of the best means of pursuing their inquiries. The publications, therefore, of Drs. ALLEN, SHORT, RUTTY, HILLARY, SHAW, and others, of Great-Britain, who wrote on mineral waters early in the century; and of many cotemporary writers on the continent of Europe, who undertook to treat of the same subject, are of little value at the present day, excepting so far as they exhibit facts. But when the sciences of Chemistry and Mineralogy reached that stage of improvement which they attained in the hands of SCHEELE and BERGMAN, the analysis of mineral waters began to be pursued upon a new and improved plan. BERGMAN, in particular, about the year 1779, wrote very ably on this subject, and gave new and instructive views of it. About the same time, Messrs. MONNET and CORNETTE, of France, and GIAONNETTI, of Italy, displayed in

their respective works, considerable talents as hydro-analysts, and gave much valuable information to the world. These were followed by the excellent treatises of FOURCROY, on the waters of *Enghien;* of KLAHROTH, on the waters of *Carlsbad;* and of BLACK, on the waters of *Iceland.* In the experiments of these distinguished philosophers new and more accurate tests are exhibited; several improvements in the application of those before known are communicated; and methods unfolded of determining with precision the separate quantities of inseparable substances. Next appeared the publications of Drs. PEARSON and GARNET, and Mr. LAMBE, of Great-Britain, who, with great accuracy, analysed some of the mineral waters of their own country, and gave important information respecting them. In the same branches of mineralogical inquiry, the works of GREN, WESTRUMB, and KIRWAN, are also exceedingly valuable; especially that of the last-named gentlemen, who, in a tract singularly comprehensive, and abounding with instruction, has given a rich amount of principle, experiment, and authority, on this interesting subject.[k] The respectable publications of Drs. MUNRO, FALCONER, and SAUNDERS, are also entitled to notice, in recounting the names of those who have thrown light on the inquiry concerning mineral waters. By the labours of these, and many other philosophers, discoveries have been made, concerning the composition and medical powers of mineral waters, in almost every part of the world, extremely useful to the interests both of science and humanity.

[k] *Essay on the Analysis of Mineral Waters,* by RICHARD KIRWAN, Esq. F. R. S. &c. 8vo. 1799.

CHAPTER IV.

MEDICINE.

THE profession, whose department of knowledge now comes under consideration, occupy an immense field of science, and, by their number, constitute a large class of the learned world. In addition to the incentives of philanthropy and fame, which equally actuate the exertions of others, physicians are combined into a corps of observers and practical inquirers by the nature of the employment and duties they assume, and by the connection which the usages of society establish between their duties and emolument. In discharging their professional labours, they incessantly find observations and facts obtruded on their attention; and by combining these into hypotheses, theories and systems, they only indulge a favourite and almost irresistible propensity of the human mind. Hence arises the vast mass of writings which fill medical libraries, constantly accumulating, and too numerous, extensive and diversified to come within the comprehension of an individual inquirer. Whoever duly considers these things will perceive the necessity of resting satisfied on this occasion with a transient retrospect. To attempt any minuteness of detail would be to travel far beyond the limits assigned to this work, and to engross the pages which are destined to the examination of other subjects. All that can be aimed at is briefly to notice some of

the more important revolutions and improvements which distinguish the last age, and to commemorate a few of the illustrious names to whom the praise of them is chiefly due.[l]

Within the period assigned for this review, the state of medicine has been essentially changed, and has acquired a degree of extent, popular dissemination, and practical usefulness, unknown to preceding ages. The improvements in natural history and chemistry, mentioned in the preceding chapters, have greatly contributed to this extension, and may be considered as inexhaustible sources of materials calculated for a similar extension in future times. The more enlarged intercourse of mankind, the greater facility of communicating opinions and discoveries from one region to another, and the progress of commercial arrangements, by which the choicest productions of one country become the property of every other, may also be enumerated among the causes of this advancement.

In no period so much as in the last century, and in no science more than that which now engages the reader's attention, have the advantages been exhibited which arise from Lord Bacon's plan of pursuing knowledge by observation, experiment, analysis and induction. Every department of medicine bears witness of the efficacy of this process to remove the rubbish of prejudice and error, to present truth in a simple form, and to establish it upon a legitimate foundation. A more precise, rigid and logical mode of philosophising has been generally substituted for the wild and visionary hypotheses which disgraced the science of the preceding centuries.

[l] For many of the names, facts, and details included in this chapter, the author is indebted to a medical friend.

To understand the history of medicine at any period, it is necessary to trace the progress and mark the affinities of all the sciences which are contemporarily cultivated. Not only the reign of fashion, but the peculiar acquirements and taste of individuals are often to be considered in an estimate of their medical principles. " La Philosophie," says M. D'ALEMBERT, " La Philosophie prend, pour " ainsi dire, la teinture des esprits ou elle se trouve. " Chez un metaphysicien, elle est ordinairement " toute systematique; chez un géomètre, elle est " souvent toute de calcul." The application of this remark, if possible, is more eminently verified in respect to medicine than to philosophy in general. This propensity of the human mind is productive both of good and ill effects. If it be easy to show examples of injury sustained by the precipitancy of mathematicians, chemists and metaphysicians, in applying their doctrines to medical science, which cannot indeed be reasonably doubted; it is equally easy to prove that great benefit has arisen from such applications.

But notwithstanding the advantages and improvements which the eighteenth century has bestowed upon medicine, it must still be admitted that its progress has never equalled the sanguine expectations formed by many. Although nearly coeval with the existence of mankind, and demanding attention in every stage and condition of human life, the art of healing maintains a struggle with difficulties at every step. Like all other knowledge derived from observation and experience, that of medicine, though continually progressive, is subject to perpetual revolution. This tardiness, therefore, in the career of improvement, which all must admit and deplore, will excite no surprize in such as consider the mystery which still envelopes the principle of life, the labour of watch-

ing the operations of nature, the numberless fallacies which attend the endeavour to discriminate truth from falsehood, and the smallness of the stock of genuine and undisputed facts which all the observation and wisdom of ages have been able hitherto to collect.

There is no species of knowledge, relating to affairs merely human, which more indispensably requires steadiness of principles and harmony of opinion than that now under consideration. There is none in which speculation and action are more intimately related, where error is of more immediate and fatal consequence, or where a fluctuation of the mind between opposite decisions is attended with more embarrassment and distress. Yet medicine abounds with schisms and controversies; and in the present imperfect state of knowledge, to hold doctrines and adopt practices beset with the fewest errors constitutes the highest attainment within the reach of the human mind.

ANATOMY.

This subject was pursued with so much diligence soon after the restoration of learning in the fifteenth and through the two succeeding centuries, as to leave less than might be expected for the investigation of modern anatomists. LEONARDO DA VINCI made great progress in anatomical studies towards the close of the fifteenth century.[m] In the sixteenth century flourished the immortal VESALIUS, the founder of rational and systematic anatomy, whose works afford surprising proofs of

[m] This was the first man who introduced the practice of making anatomical drawings. These drawings, preserved in a British collection, excite astonishment at the depth and accuracy of his knowledge.

laborious and successful dissection. After him appeared SYLVIUS in France, COLUMBUS, FALLOPIUS and EUSTACHIUS, in Italy; whose discoveries and improvements were so numerous as to give a deep impression of the zeal and enthusiasm with which the knowledge of the structure of the human body was cultivated at that early period.

Soon after the time of the last mentioned writers the study of anatomy was gradually diffused over all Europe. The principal impediment to its progress, in that age, was the difficulty of obtaining human subjects for dissection; the want of which frequently made it necessary to dissect the bodies of brutes.

With the dawn of the seventeenth century new lights were shed upon anatomical inquiries from every quarter. At this time FABRICIUS AB AQUAPENDENTE, an eminent Italian teacher, published his account of the valves in the veins, which evidently affected the established doctrine of all former ages, that the veins carried the blood from the liver for nourishment to all parts of the body. The detection of these valves may also justly be supposed to have laid the foundation of the discovery of the circulation of the blood.

For Dr. HARVEY, the pupil of FABRICIUS, was reserved, soon afterwards, the noble discovery of the *circulation of the blood*. This was by far a more important step in the knowledge of animal bodies than had ever been made before, and gave a new spring to anatomical inquiries. In a few years after HARVEY's discovery, ASELLIUS, an Italian physician, found out the lacteals, or vessels which carry the chyle from the intestines. And about the middle of the seventeenth century PECQUET, in France, was so fortunate as to discover the *thoracic duct*, or common trunk of all the lacteals, which conveys the chyle into the subclavian vein.

At nearly the same period, the practice of dissecting living animals furnished the occasion of discovering the lymphatic vessels. RUDBEC, a young Swedish anatomist, was the first to detect them; and, after him, THOMAS BARTHOLINE, an anatomist of Denmark, who first appeared as a writer on the subject.

MALPIGHI, an eminent Italian, made great progress in anatomy soon after the period last mentioned. He was the first who used magnifying glasses with address to trace the early appearances in the formation of animals. He likewise improved anatomy by many other observations on minute parts of the body, by his microscopical labours, and by the dissection of animals. Between the middle and end of the seventeenth century, anatomy was much improved by the diligence of SWAMMERDAM, VAN HORN, STENO, and DE GRAAF. Professor DIEMERBROECK, of Utrecht, without much originality, compiled a work, which, for many years, was regarded among students as a standard authority.

Towards the close of the same century LEWENHOECK obtained great celebrity by his improvement on MALPIGHI's use of microscopes. Though many of the supposed discoveries of this anatomist, particularly his account of the composition of the red globules of the blood, and of animalcula observed in the semen, are now discredited; it must still be admitted that he advanced many steps in bringing to light the more minute parts of animal structure. NUCK likewise soon afterwards added to the stock of knowledge by his injections of the lymphatic glands. The anatomical plates of BIDLOO and COWPER, published about this time, are also entitled to respectful notice.

In the latter part of the seventeenth century anatomy was greatly advanced by the invention of

injections, and the method of making what are commonly called *preparations*. These two modern arts have been of great advantage in this science; they have introduced not only an unexpected degree of correctness, but an elegance in demonstrations which formerly could not have been supposed to be possible. They began in Holland under SWAMMERDAM and RUYSCH, and were afterwards employed in England by COWPER, ST. ANDRE, and others. RUYSCH possessed a singular excellence in injections, which has been supposed by many not to have been equalled since, and which certainly has not been surpassed. The anatomists of former ages had no other knowledge of the blood-vessels than such as they were able to obtain by laborious dissections, and by pursuing the smaller branches of them, upon favourable occasions, when they happened to be more than commonly loaded with red blood. But filling the vascular system with a bright coloured wax presents a distinct view of the large vessels, renders the smaller much more conspicuous, and makes thousands of the very minute ones visible, which, from their capillary size, their delicacy, and the transparency of their contents, would be otherwise imperceptible.

In this high state of advancement, anatomy stood at the beginning of the century whose progress and improvements it is the object of this work more particularly to explore. At that period, the Italian and Dutch schools held an undoubted superiority. This superiority, however, has been since much more equally divided among the British, French and German anatomists.

Early in the eighteenth century, anatomy was improved by the writings of RUYSCH, in Holland, and of COWPER, KEIL, DOUGLAS, CHESELDEN, and others, in Great-Britain. The works of ALBINUS,

WINSLOW, and the first MONRO, greatly contributed to the same end, and are familiarly known to all the cultivators of this science.

But the most memorable discovery that anatomy can boast in the eighteenth century is that of the *absorbent system.* It has been mentioned that RUDBEC and BARTHOLINE became acquainted with the lymphatic vessels about the middle of the preceding century. When they were first seen and traced into the thoracic duct, it might have been supposed natural for anatomists to suspect, that as the lacteals absorbed from the cavity of the intestines, the lymphatics, similar in figure and structure, might possibly perform the same office with respect to other parts of the body. Notwithstanding this, anatomists in general, from repeated experiments, particularly such as were made by injections, were persuaded that these lymphatic vessels did not arise from cavities, and did not absorb, but were merely continuations of the small arteries. It had indeed been supposed by Dr. GLISSON, who wrote in 1654, that they arose from cavities, and that their use was to absorb. Dr. FREDERICK HOFFMAN had also very explicitly laid down the doctrine of the lymphatic vessels being a system of absorbents. These suggestions, however, produced little effect. And it was reserved for Dr. HUNTER, of London, and Dr. MONRO, the present professor at Edinburgh, to prove that the lymphatics are absorbing vessels throughout the whole body; that they are similar to the lacteals; that all these collectively taken, together with the thoracic duct, constitute *one great and general system*, dispersed through the whole body, for the purpose of absorption; that their sole office is absorption; and, finally, that they serve to take up and convey whatever is *to enter the composition of the blood*, or *to be again mixed with the blood*, from the intesti-

nal canal, from the skin, and from all the internal cavities and surfaces."

The discovery of the absorbent system is justly considered as the greatest that anatomy has suggested since that of the circulation of the blood. The advantages which arise from the knowledge of the structure and office of this system of vessels in establishing physiological principles, and in ascertaining the nature and treatment of diseases, are universally admitted. Before the discovery of the lymphatics being a system of absorbents, it was impossible to give a clear and consistent account of a great number of phenomena which are now satisfactorily unfolded. From this source much knowledge has been obtained concerning the introduction and effects of poisons; and, aided by this light, physicians are enabled to trace many diseases directly to their causes, to explain the assemblage and succession of symptoms, and to apply remedies with more prompt and appropriate efficacy. On this account physicians of learning and judgment have not been wanting who pronounce the solid and practical usefulness of this discovery even to exceed that of the circulation of the blood.

But whatever may be the comparative estimate of the two discoveries in relation to one another, it is plain that they are both the most memorable

a A warm controversy, concerning the discovery of the true use of the lymphatics, was carried on between Dr. HUNTER and Dr. MONRO. The former asserts that he taught it in his lectures so early as 1746, and appeals to his pupils for the truth of the assertion. The latter seems to have made the discovery in 1753; and in 1755 published an account of it in a thesis *De Testibus in Variis Animalibus*. Before the publication of this thesis Dr. BLACK is said to have informed the author that the same opinions concerning the valvular lymphatics had been long entertained by Dr. HUNTER. In 1756 Dr. MONRO attended Dr. HUNTER's lectures in London; heard the whole doctrine of the lymphatics very amply explained; and in 1757 reprinted his opinion at Berlin, without taking notice of Dr. HUNTER's, who, in consequence, charges him with plagiarism; and the charge is retorted by Dr. MONRO.

that the annals of anatomy can boast. Under the influence of this impression, Dr. HUNTER declared, in one of his lectures, that "in looking over the "whole progress of anatomy, from the time of "Aristotle to the present day, there have been "only *two grand discoveries* with regard to the "physiology of our bodies; to wit, the *Vascular* "*system, or circulation of the blood,* and the *Ab-* "*sorbent system;* the *Brain* and *Nervous system* "having been known long before."

Notwithstanding, however, the weight of the arguments adduced by Dr. HUNTER, Dr. MONRO, and others, in support of this doctrine of the absorbent system, it has been opposed by writers of great authority. The old opinion, that the veins perform the office of absorbents, was held by HALLER[n] and MECKEL. Within a few years, Mr. HUMPAGE, in a work entitled "Physiological Re- "searches into the most important Parts of the "Animal Economy, &c." undertook to controvert the prevailing doctrine on this subject. He endeavours to prove, conformably to the opinion of the old anatomists, that the lacteals and lymphatics constitute systems of vessels entirely separate and distinct. He admits that the lacteals arise from the internal surface of the alimentary canal, terminate in the thoracic duct, and convey the chyle into the blood. But he denies that the lymphatics arise from cavities and surfaces, or that they terminate in the thoracic duct; and maintains, on the contrary, that they originate from the heart and arteries, that they serve to convey lymph from the blood, and that they terminate on all surfaces and cavities. He contends that the use of the lymphatic glands is for the separation of the lymph from the blood; and that the lymphatic vessels are

[n] *Element. Physiolog. Corp. Human.* l. 24. § 2, 3.

excretory ducts to the lymphatic glands. For the important function of absorption he provides in the following manner. He supposes that, although the lymphatic vessels convey fluids from the blood, they also occasionally possess the power of absorption. This office, he imagines, they perform after accomplishing their first purpose; that is to say, after conveying the lymph to the various parts of the body, they become mere empty tubes, and absorb whatever is applied to any surface. According, therefore, to the degree of inanition or repletion of the lymphatic vessels, in his opinion, will the body be more or less susceptible of the absorption of any fluid applied to the skin, or any other surface or cavity.

These, however, and many other objections to the generally received doctrine of the absorbent system, have gained little credit among the most respectable anatomists. The arguments by which they are attempted to be supported have been shown to be founded on injections unskilfully made, on observations inaccurate, and conclusions altogether illogical.

In the early part of the controversy on this subject, it was urged, that, before the doctrine of the lymphatics being a system of absorbents could be established, it was necessary first to determine whether this system is to be found in other animals besides man and quadrupeds. Mr. Hewson claimed the merit of having proved the affirmative of this question, by discovering the lymphatic system in birds, fishes, and amphibious animals.[p]

Since the time of Mr. Hewson, the anatomy of the absorbent system has been greatly extended and improved. The ramifications of it, in almost every part of the body, have been traced by Mr.

[p] *Philos. Transac.* vol. lxviii & lxix.

CRUIKSHANK, with great accuracy; and from his dissections, figures have been made and published which are deservedly held in high estimation. To Mr. SHELDON also, anatomists are much indebted for his illustration of this system. And MASCAGNI, of Italy, has likewise bestowed great pains on this subject.

As a general system of anatomy, the "Anato-" mical exposition of the structure of the human " body," by Professor WINSLOW, of the University of Paris, though compiled and published early in the eighteenth century, was, till near the close of it, regarded as a standard work. This has, of late, given place to a more comprehensive and accurate compilation, in three volumes, executed by Mr. FYFE, of Edinburgh, under the direction of Professor MONRO. HEISTER's compendium, during a great portion of the century, was held in high esteem. Dr. SIMMONS, of London, has also lately obliged the world with an excellent system of anatomy, in which the subject is treated with uncommon perspicuity and elegance. Among treatises on anatomy in general, those presented to the world by SABATIER and PLENCK, within a few years, deserve to be particularly mentioned. Mr. JOHN BELL, of Edinburgh, has published two volumes of a system of anatomy, which is considered as a very able work, so far as it goes, and will probably be completed in a short time. Mr. CHARLES BELL, of the same city, in a work entitled " A System of Dissections," has done much towards facilitating and familiarizing the study of anatomy, and displaying the appearances of morbid parts of the body. And a very recent " Com-" pendium of Anatomy" by Mr. FYFE, above-mentioned, illustrated by a large number of engravings, is supposed to contain improvements, of more or less value, on every preceding work of that kind,

To the above may be added a variety of valuable publications by Professor SCARPA, of Pavia, who has well supported the reputation of the former Italian schools of anatomy.

In particular departments of anatomy much has been done within the century, to enrich the science, which ought not to be passed without special notice.

The *gravid uterus* is a subject which has attracted much attention, and received considerable improvement, within this period. The works of ALBINUS, ROEDERER, and JENTY, have greatly enlarged the knowledge of former anatomists on this point. But Dr. HUNTER's publication on the gravid uterus, to which he had devoted a long time and uncommon pains, far excelled every preceding work. MECKEL, and the second MONRO, have treated of the *nerves* to considerable extent; WEITBRECHT and LEBER on the *joints* and *fresh bones*; SOEMERRING and MONRO on the *brain*;[q] PORTERFIELD, HALLER, ZINN, and WRISBERG on the *eye*; COTUNNIUS, MECKEL, jun. CAMPER, SCARPA, and many others, on the *ear*. WALTER is celebrated for his description of the *veins of the head and neck*, as well as very elegant plates of the *nerves of the thorax and abdomen*. TREW has ably treated of the *dif-*

q Mr. SOEMERRING thinks it probable that the *soul* is seated in the fluid of the ventricles of the brain. He infers this from the fact of the nerves of vision, hearing, taste and smell being all at their origin in contact with and exposed to the action of the fluid in the ventricles; from the same taking place with regard to the nerves of touch, originating from the fifth pair, the glosso-pharyngeal, those belonging to the organ of voice and the motions of the eyes; from the impossibility of finding a solid part of the brain into which the terminations of all the nerves can be traced; from the nerves of the finest senses, viz. hearing and seeing being most extensively expanded and most directly in contact with this fluid; from the preternatural increase of this fluid in the ventricles of ricketty children, which perhaps may be the cause of their uncommon acuteness of mind; and, finally, from the fact, that no animal possesses so capacious and so perfectly organized ventricles as man, they being in the other mammalia much smaller than in man, still less in birds, least of all in fishes, and absolutely wanting in insects.

ferences between the fœtal and adult vessels; Dr. Monro, jun. on the *Bursæ Mucosæ*, &c.

The anatomists of the eighteenth century have effected great improvements in the science, and facilitated the communication of it to students, by the number and correctness of their *engravings*. Figures of the *bones*, in folio, have been published by Cheselden, Albinus, Sue and Trew. The *muscles* are exhibited by Cowper and Albinus with great accuracy; by the latter particularly in a style of elegance which cannot easily be surpassed. Haller's *Icones*, especially of the *arteries*, are much admired. Anatomical figures of particular and smaller parts of the body are without number, and many of them possess great excellence. It will be sufficient to mention a few; such as those by Morgagni, Ruysch, Valsalva, Sanctorini, Heister, Vater, Cant, Zimmerman, Walter, &c.

The vast work, projected by Vicq-d'-Azyr, of France, was soon terminated by his premature death. He conceived the idea of representing anatomically the whole animal kingdom, from man down to the simplest hydra, of giving exact figures of every form of living matter, and of consolidating the immense plan into one great whole. Upon the *brain* alone nineteen folio plates are employed, of which several are coloured; these are executed with admirable elegance. This universal system of anatomy and physiology, both human and comparative, was proposed to be executed in the same splendid style. But he lived only to finish five numbers. The design is apparently too extensive to be accomplished within the period of a single life.

In Great-Britain, likewise, an extensive anatomical work has been undertaken by Mr. Andrew Bell, entitled, *Anatomia Britannica*, under the

inspection of Mr. FYFE and Dr. MONRO. It is designed to compose a complete illustration, both general and particular, of the human body, by a selection from the best plates of all the greatest anatomists, as well foreign as British, exhibiting the latest discoveries, and accompanied with copious explanations. The whole number of plates is to be upwards of three hundred, in royal folio, of which a large proportion are already published.

The art of *injection* and of making *preparations*, which was before stated to have reached such a point of excellence towards the close of the seventeenth century, has been very extensively and successfully exercised during the eighteenth. The modern practice of corroding the fleshy parts and leaving the moulded wax entire, is so useful as well as ornamental, that it reflects great credit on Dr. NICHOLLS, the ingenious inventor. In the injection of the lacteals and lymphatics the late century may justly claim the credit of having made very considerable progress.

Morbid dissections form a new and interesting era in anatomy and medicine. BONETUS, near the end of the seventeenth century, had published his *Sepulchretum Anatomicum*. MORGAGNI, in his inestimable work, "*De causis et Sedibus Mor-*" *borum*," has enriched morbid dissections with many precious additions, and has rendered them highly instructive to the medical practitioner. LIEUTAUD and HALLER have also greatly increased the stock of knowledge on this point. Most of the distinguished anatomists, indeed, have contributed their exertions to improve the principles of medicine, by directing their dissections to this object. Lately Dr. BAILLIE's publications on morbid anatomy, illustrated by correspondent engravings, do the highest honour to his diligence, learning, and judgment.

Besides the discoveries and improvements obtained from the dissection of human bodies, *Comparative Anatomy* or *Zootomy* has made great progress in the course of the eighteenth century. Many advantages have arisen, and may be expected hereafter to arise, from this source. In addition to the benefits resulting from a more enlarged acquaintance with the properties and functions of animated nature, which often reflect light on the human economy, and are founded in the knowledge of comparative anatomy, the *veterinary* art has lately become so extensive and respectable as to require, on its own account, a more minute examination of the structure of many animals.

The most illustrious names among such as have distinguished themselves in human anatomy, are in general precisely those who have done the most to extend the limits of comparative anatomy in the eighteenth century. To prove this it will be sufficient to recal the reader's attention to the writings of HALLER, Dr. and Mr. HUNTER, the first and second MONRO, &c. The *Essay on Comparative Anatomy*, by the first MONRO, affords proof of the diligence he exercised on the subject. The thesis of the second MONRO, "*De testibus in variis animalibus*," abounds with evidence of deep, laborious and successful researches. And his work on *Fishes*, mentioned in the preceding chapter, has greatly contributed to enlarge our acquaintance with the structure and functions of that large class of animals. Every anatomist is informed of the discoveries and improvements made by Dr. and Mr. HUNTER in their numerous dissections of animals, and of the principles and doctrines which these dissections enabled them to establish. They were followed by Mr. HEWSON, Mr. CRUIKSHANK, and many others of distinguished reputation, who were employed in the investigation of

the absorbent system. DAUBENTON and VICQ-D'-AZYR, of France, the dissections made under the orders of the Royal Academy of Sciences of Paris; SPALLANZANI, of Italy, CAMPER, of Holland, the late extensive and systematic work of Mons. CUVIER, which exhibits the dawn of an improved arrangement, and a great number of the most eminent zoologists of the age, have strong claims to be commemorated in a review of the comparative anatomists of the eighteenth century.[r]

In concluding this brief survey of the subject, it may not be improper to remark that far less remained to be done in anatomy, at the commencement of the late century, than in any of the other branches of medicine. The leading principles of the science had been chiefly ascertained and settled by the industry and perseverance of preceding ages. And the greater part of what was left to be accomplished consisted in a superior fulness, accuracy, and minuteness of description, more elegance of delineation, more neatness and variety of preparations, and a progressive improvement in the arts of dissection and demonstration. It is evident that, in all these respects, a considerable progress has been made within the period under review.

PHYSIOLOGY.

That department of physical science which treats of the various properties and functions of

[r] In addition to the above-mentioned works and names, it may not be improper to subjoin the following comparative anatomists, selected from a great number. Fragments of the *Curieux de la Nature*; the collections of BLASIUS and VALENTINI; DU VERNEY, COLLINS, STUBBS, COLEMAN, and HOME, on *quadrupeds and birds*; CHARAS, ROESEL, and FONTANA, on *reptiles*; ARTEDI, the GOUANS, and BROUSSONET, on *fishes*, REAUMUR, the GEOFFROYS, BONNET, and LYONNET, on *insects*; and ELLIS, DONATI, TREMBLEY, BAKER, BASTER, BOHADSCH, FORSKAL, ADANSON, MULLER, PALLAS, and DIQUEMARE, on *worms*, *zoophytes* and *polypes*.

living bodies must be allowed to possess great importance; and the review of its progress during an hundred years of more industry and enterprize in the pursuit of natural knowledge than the world has ever witnessed before, will be supposed to present difficulties proportioned to the extent and complexity of the subject.

To such as feel a genuine attachment to the science of nature, few subjects present inquiries of a more interesting and instructive kind. When improved as far as the state of the other cotemporary sciences will admit, it will be found to exhibit a systematic result of all the experiments and observations, facts and principles, which serve to explain and illustrate the phenomena of animated nature. And when it shall reach that point of advancement to which a cautious estimate of the powers of the human mind may suppose it to proceed, it will probably be enabled to diffuse lights and suggest improvements far beyond the most sanguine expectations of the naturalists of the present day. In zoology, botany, anatomy, and the theory and practice of physic, these good effects may be confidently anticipated.

As all living bodies are subjects of physiological inquiry, and as by living bodies are here meant all those which are enabled, by a certain organized structure, to grow and to propagate their kind, it is plain that physiology must extend to the whole of that organical economy in animals and plants which the author of nature has contrived for the preservation of the individual, and the continuance and propagation of the species. But although it is not intended, in this brief retrospect, wholly to overlook the history of the doctrines of general physiology for the late century, it may be proper to apprize the reader that the objects of human physiology will chiefly claim attention.

This restricted view of the subject is preferred, on the present occasion, not only on account of the requisite brevity, but because the chief design of introducing this sketch of the progress of physiology is to consider it in subserviency to medical science, and as preparatory to the remarks which are to follow concerning the theory and practice of physic.

At the close of the seventeenth century, physiology presented a chaos of the wildest and most discordant principles. The extravagant notions of the Galenists and Chemists had indeed ceased to be generally defended; but they were succeeded by those of the mathematicians, which were nearly as far removed from truth and nature. The discovery of the circulation of the blood, in the beginning of the seventeenth century, had given rise to the introduction of mechanics into medical doctrines. And as that system of philosophy was founded upon the general laws of nature, the ablest physiologists of the day were easily induced to apply it to the human body; which was supposed to differ only from the rest of the universe in the variety and complexness of its machinery.

Bellini, of Florence, was the first who attracted much attention by the introduction of mathematics into physiology. Professor Borelli pursued the same course of reasoning, and soon became one of its most enthusiastic admirers. He employed it so well in showing how the muscles act as cords, and the bones as levers, that he thence undertook to explain, with happy effect, the phenomena of standing, walking, leaping, flying and swimming, in different animals.[r] Emboldened by the success of his first attempt, he afterwards ventured to explain, on the principles of mecha-

r See his work, *De motu animalium.*

nism, all the internal motions and their proximate causes. On the same ground he gave a minute account of the pulsation of the heart, of the circulation of the blood, of the office of the lungs, the kidneys and the liver, of the nervous fluid, and the semen, of vegetation, generation, nutrition, hunger, thirst, pain, lassitude, and febrile heat. By this ardent speculatist all nature was interpreted on mathematical principles; for, except the mechanical, he was willing to admit no other secondary powers in nature. He thought, with Plato, that the Deity himself was always *geometrising;* and was fully persuaded that physical knowledge could only be acquired through the medium of geometrical demonstrations and forms.

With what eagerness and zeal Dr. PITCAIRN adopted mechanical physiology, and to what unreasonable extremes he was disposed to carry it, is sufficiently known. So attached was he to the geometrical mode of demonstration, that he appeared to consider it as the only species of evidence, excepting the senses, that deserved any reliance.

These opinions were warmly adopted and supported by the illustrious BOERHAAVE, who first appeared as a public teacher about the beginning of the eighteenth century. He exhibited the first successful example of combining physiology with anatomy, reduced the former from a rude and chaotic into a regular state, and conferred upon it that systematic and elegant form which so greatly recommended it to the notice and admiration of the world. But a more particular account of the opinions of this distinguished physician will be given under a succeeding head.

Baron HALLER, the disciple of BOERHAAVE, pursued the steps of his master, and far surpassed him in his physiological career. He made a universal collection of preceding discoveries in ana-

tomy and physiology, and digested them into order and method. He surveyed every part of the human body, explained the various functions according to the best lights which the state of science at that time afforded, corrected the errors of preceding writers, and by a series of indefatigable labours, was enabled to make very important additions to the existing stock of knowledge. In his great work, entitled *Elementa Physiologiæ Corporis Humani*, he examined the opinions which have been recommended, or, at least, advanced by all the most celebrated authors. Nothing of importance, that had been previously published, escaped his notice. The most rapid sketch of the errors in physiology which he detected, of the new facts which he added, of the ingenious and profound views which he opened, of the doubts he removed, and of the theories he reformed and improved, would exceed the limits assigned to this work.[t]

But the greatest of HALLER's discoveries, and that which forms an era in the progress of physiology, is the *irritability* of the animal fibre. This *irritable* or *contractile* power is that property by which muscles recede from stimuli, and become shorter on being touched by them. It is a power

[t] Baron ALBERT DE HALLER was born at Berne, October 18, 1708, and died in 1777. He was unquestionably one of the greatest men of the age in which he lived; being equally distinguished for the extent and variety of his learning, the vigour and comprehensiveness of his mind, the purity of his taste, and the excellence of his moral and religious character. His great attainments, and the uncommon powers which he displayed in almost every kind of knowledge, and particularly in anatomy, physiology, medicine, botany, and various branches of natural history, and also in classical and polite literature, are generally known. He was not less distinguished as a friend to the religion of Christ. He not only professed to believe in revelation, and to cherish a warm attachment to the gospel; but amidst his multiplied avocations, he spent much time in studying the scriptures, and the evidences of their divine origin; and entered the lists as their avowed advocate and defender. His excellent *Letters to his Daughter* will long remain a monument at once of his regard to religion, and of his paternal fidelity. See HENRY's *Memoirs of Albert de Haller*, M. D. &c. &c.

inherent in the muscular fibre, and essential to life. It is so far independent of nerves, and so little connected with feeling, which is the leading property of nerves, that, upon stimulating any muscle by touching it with caustic, or irritating it with a sharp point, or directing the electric spark through it, the muscle instantly contracts; although the nerve of that muscle be tied; although the nerve be cut so as to separate the muscle entirely from all connection with the nervous system; although the muscle itself be separated from the body; and although the animal upon which it be performed have lost all sense of feeling, and have been long to all appearance dead. It is by this irritable principle that an incised muscle contracts so powerfully; and that a divided artery shrinks and retires into the flesh.

This important *principle of irritability*, which HALLER denominated *Vis Insita*, from its being an inherent, independent and permanent property of the living fibre, was in a great measure unknown to preceding physiologists. BOERHAAVE acknowledged an active power in the heart, and a latent principle of motion in the parts of it when divided; but nevertheless he attributed this to the nerves, though the communication with the brain had been entirely cut off. The celebrated Dr. WHYTT, of Edinburgh, followed nearly the same path, with only some difference in point of expression. About the middle of the century now under consideration, this physician was engaged in a controversy with HALLER on this subject. WHYTT contended that all the phenomena of irritability might be referred to nervous influence, and rejected his antagonist's principle of muscular action, as founded in error, and unnecessary to explain the phenomena. On the contrary, to this *Vis Nervosa* of WHYTT, though maintained with all the aid of

ingenuity and learning, HALLER, with much greater force and conclusiveness of reasoning, persisted in opposing his doctrine of *Vis Insita*, as a primary, essential, and inherent quality of the living fibre, dependent on its original structure and organization, and entirely independent of the nerves. Not many years ago Professor MONRO, of Edinburgh, in his *Observations on the Structure and Functions of the Nervous System*, renewed the attempt, though it is conceived without success, to invalidate the doctrine of HALLER.

In pursuance of this interesting doctrine, HALLER contemplates the living body under a four-fold division, into parts, 1. Irritable; 2. Inirritable; 3. Sensible; 4. Insensible. Among *irritable* parts he ranks the heart, the muscles generally, the diaphragm, the œsophagus, the stomach, the intestines, the gall-duct, the arteries, the absorbents, and the bladder. Among *inirritable* parts he reckons the lungs, the liver, the kidneys, the spleen, and the nerves. Among *sensible* parts he enumerates the brain, the spinal marrow, the nerves, the skin, the internal membranes of the stomach, intestines, and bladder, the ureters, the muscular flesh, and the breasts. Among *insensible* parts he considers the dura mater, the pia mater, the periosteum, the peritonæum, the pleura, the pericardium, the omentum, the cellular texture, the cuticle, the rete mucosum, the fat, the tendons, the capsules and ligaments of the joints, the bones, the marrow, the teeth, and the gums.

From this account, given by HALLER, of the various parts which are united to form an animal system, it results that the *irritable* and *sensible* portions are comparatively few and small; that the great mass of the body consists of *inirritable* and *insensible* parts, which serve to combine, envelope and defend the former, and thereby to constitute

moving perfect whole, adapted to assume the actions of life, and to sustain the impression of surrounding objects.

In this arduous inquiry, which so long engaged the mind of HALLER, and which led to so many interesting results, he was not condemned to the necessity of labouring alone. The example of the preceptor inspired many of his pupils with the same spirit of exertion and enterprize. ZINN, ZIMMERMAN, CALDANI, and several others, animated by a liberal emulation, laboured with indefatigable diligence to extend and improve the discoveries of their illustrious master. Thus, by the combined exertions of the teacher and his students, was the philosophy of animal life more deeply investigated than ever before, and eventually placed on a basis almost entirely new.

The effects of HALLER's doctrine of *irritability* in improving physiological and medical principles must be obvious to the most superficial observer. It will not be thought extravagant to say that he seems to have laid the true foundation of the science of medicine; if indeed such a foundation can be said to be yet laid. From HALLER, more than from any single writer, Dr. BROWN, and other modern systematic reformers, who have done most to improve medical principles, seem to have borrowed the torch by which they were enabled to direct their progress, and to explore the obscurities of their route.

But notwithstanding HALLER's felicity in accomplishing so much to aid the progress of physiology, he did not live to witness two of the most signal improvements in that science which the eighteenth century can boast. He died in the year 1777, just about the time when a new and unexpected light began to be shed upon the functions of *respiration* and *digestion*.

The office of the *Lungs*, which is now of all the animal functions the best understood and the most susceptible of scientific illustration, was unknown to HALLER. He supposed that the principal object of respiration was to form the voice. That such a man, possessed of all the knowledge of preceding and cotemporary physiologists on this subject, should have acquiesced in this conclusion, is indeed matter of surprize; but at the same time it serves to fix the source, and to enhance the value of this great discovery.

To modern chemistry the praise of unfolding the mystery of respiration is certainly due. The establishment of this truth alone is almost sufficient to subvert the old and to erect a new system of physiology. And if no other benefit than this had arisen from all the brilliant discoveries which chemistry offers to the world, it would have sufficed to rescue that science from neglect, and to assign it an elevated rank among the objects of human knowledge.

It is often asserted that much of the true office of the lungs was known to the physiologists of the seventeenth century. Even from much more ancient writers expressions sometimes escape which show a tendency to just views of the subject; as for example, when air received in respiration is supposed to afford the *pabulum vitæ*, *spiritus alimentum*, &c. But in the century just mentioned a much nearer approximation to the truth was undoubtedly made. VERHEYEN observed that those animals which respire most have the warmest blood.[v] LOWER demonstrated that the blood receives a new and a brighter colour in passing through the lungs.[w] VERHEYEN and BORELLI both

[v] *Tract. De usu Respirationis.*
[w] *Ibid.*

proved that the air lost something by coming in contact with that organ.[w] And the former remarked that this *something* is absorbed by the lungs; is probably that which maintains combustion, which qualifies the air to support animal life, and imparts to the blood the vermilion colour.[x] Towards the latter part of the same century Dr. Hook and Dr. Mayow published opinions concerning respiration, which approach more nearly to the doctrine now generally received than could be readily believed if their writings themselves did not bear witness. The former seems to have been obscurely acquainted with oxygen and its absorption in breathing. The latter, according to the opinion of Dr. Beddoes,[y] "was acquainted with "the composition of the atmosphere, and per- "ceived the action of *vital air* in almost all the "wide extent of its influence. He carried on his "investigation of respiration from the diminution "of the air by the breathing of animals, to the "change it produces in the blood during its pas- "sage through the lungs. The office of the lungs, "says Dr. Mayow, is to separate from the air, and "convey to the blood one of its constituent parts."

It is astonishing that such suggestions should have been so little known and so little attended to by succeeding physiologists. They seem to have attracted but slight regard at the time of their publication, and very soon afterwards to have been completely forgotten. But, after all, it must be admitted that the superior light of modern discoveries, reflected on organs of eager discernment, is alone sufficient to enable the reader of those antiquated writings to perceive, in the few truths they contain, blended and buried under so much obscu-

[w] *Tract. De usu Respirationis.*
[x] *Ibid.*
[y] See Dr. Beddoes's *Analysis of Dr.* Mayow's *Works.*

rity, mistake and error, the true principles of respiration.

There cannot be stronger proof of the fact that these obscure hints of the real use of respiration were unknown or forgotten by succeeding physiologists, than may be found in the works of HALLER and Dr. WILLIAM HUNTER. The opinion of the former of those great physiologists, concerning the subserviency of respiration chiefly to the formation of the voice, has been already mentioned. The latter, in his introductory lecture, published in 1784, expresses himself as follows: "Respiration "we cannot explain; we only know that it is, *in* "*fact*, essential and necessary to life. Notwith- "standing this, when we see all the other parts of "the body, and their functions so well accounted "for, we cannot doubt but that respiration will be "so likewise. And *if ever* we should be happy "enough to find out clearly the object of this func- "tion, we shall, doubtless, as clearly see, that *this* "*organ* is as wisely contrived for an important "office, as we now see the purpose and importance "of the heart and vascular system; which, till "the circulation of the blood was discovered, was "wholly concealed from us."

It will scarcely be necessary to add to what is already stated concerning HOOK and MAYOW, that Mr. BOYLE and Dr. HALES were much engaged on the same subject, and that the latter particularly was greatly useful by his experiments and researches in pneumatic philosophy, which paved the way for the brilliant improvements of his successors in that inquiry.

The splendid progress of pneumatic chemistry which ennobles the last twenty-six years of the eighteenth century, has been detailed in another place. The discovery of *oxygen*, and the analysis of the atmosphere, are prominent points in that pro-

gress; and they likewise constitute the basis of the principles which were afterwards so successfully applied to explain the nature and objects of the function of respiration.

It is universally known, that the merit of taking the lead in the application of the principles of pneumatic chemistry to explain the function of the lungs, is due to Dr. PRIESTLEY.[z] In the year 1774 he discovered the existence, and many of the properties, of *oxygen*. Mr. SCHEELE made the same discovery nearly at the same time. Not long afterwards these two philosophers demonstrated that the quantity of oxygenous gas is diminished in respiration. In 1776 LAVOISIER proved that atmospheric air is compounded of oxygen and azote, brought by means of caloric to the state of elastic fluids. In the following year that eminent philosopher discovered that a quantity of carbonic acid gas is found in air after it has been respired for some time, which did not previously exist in it. Some time afterwards he found, by a variety of experiments, that no animal can live in air totally deprived of oxygen. This fact was soon confirmed and extended by the experiments of many other philosophers, who proved that even fishes, which do not perceptibly respire, and frogs, which can suspend their respiration at pleasure, speedily die if the water in which they are placed becomes destitute of oxygenous gas.[a]

By a further prosecution of observations and experiments on this subject, it was not long afterwards satisfactorily established, that certain remarkable changes are produced by respiration not only upon the air respired, but likewise upon the

z For a considerable portion of the facts detailed in several of the following paragraphs, on the subject of *respiration*, the author is indebted to a very respectable work, entitled, *A System of Chemistry*, by THOMAS THOMSON, M. D. 4 vols. 8vo. 1802.

a CARRADORI, *Ann. de Chim.* xxix. 171.

blood exposed to this air. The most noted changes observed to take place in the air itself subjected to respiration are the following: a part of the air respired entirely disappears; the rest becomes impregnated with carbonic acid, and is loaded with water in the state of vapour. For the knowledge of these changes effected in the air respired, and for the numerous and laborious experiments from which these conclusions were inferred, the world is chiefly indebted to PRIESTLEY, CIGNA, LAVOISIER, MENZIES, SEGUIN, and DAVY.

Changes no less remarkable are found to be produced in the blood exposed to the air in the lungs. The principal of these are as follow: the blood absorbs air; it acquires a florid red colour, and the chyle mixed with it undergoes such alteration as to lose its colour and disappear; it emits carbonic acid, and perhaps carbon itself; and it emits water, and perhaps hydrogen. The writers who have principally signalized themselves in tracing and making known these changes in the blood, are PRIESTLEY, CIGNA, FOURCROY, HASSENFRATZ, BEDDOES, WATT, and, very lately, MR. DAVY.

The theories of this function, as deduced from facts successively discovered, have varied according to the number of such facts, and the impressions which they made on different minds. Dr. PRIESTLEY, the first of the modern chemical philosophers, as was before remarked, who attempted to investigate the use of respiration, seems to have considered it, from some of his earliest experiments, chiefly as an excretory process. He believed that the blood, in passing through the lungs, gives out *phlogiston* to the air, which, when expired, he supposed to be loaded with that substance, and, consequently, that the main purpose of respiration is to discharge phlogiston from the blood.

Soon after these conclusions had been formed by Dr. PRIESTLEY, M. LAVOISIER directed his efforts to ascertain, with as much precision as possible, the changes which the air undergoes in the process of respiration. In order to explain this function he framed a theory, which assumed, as its basis, that all the changes produced on the air inspired are produced in the lungs; and, of consequence, that all the new compounds and substances detected in the air expired, are formed in the lungs. It was a principle of this theory, that the blood absorbs no air in the lungs; but that it discharges hydrogen and carbon, which, combining with the oxygen of the air inspired, form water and carbonic acid. This theory was adopted by LA PLACE, CRAWFORD, GREN, and GIRTANNER, with some small modifications, which it is unnecessary here to particularize. Upon close inspection, it appears that this theory of LAVOISIER does not materially differ from the original hypothesis of Dr. PRIESTLEY, viz. that the object of respiration is to free the blood of *phlogiston*. The difference consists chiefly in terms and in detail. For if carbon and hydrogen be substituted for phlogiston, which is often necessary in reconciling the statement of facts delivered by the *phlogistians* and *antiphlogistians*, the two theories will be found entirely to agree. M. LAVOISIER did little to establish his theory by proof. He only attempted to prove that the amount of oxygen absorbed in respiration exactly corresponds with the quantity of it contained in the carbonic acid and the water emitted. But as this coincidence of quantities cannot be proved, his theory is unsupported, so far as the establishment of it depends upon such coincidence.

Afterwards, when a greater number of facts and illustrations of this subject had been collected, a different theory was offered by LA GRANGE. Ac-

cording to him, the *oxygen* which disappears in respiration combines with the blood in its passage through the lungs, and at the moment of this combination there is set loose from the blood a quantity of carbonic acid gas and water, in the form of vapour, which are thrown out with the air expired. This theory was adopted and illustrated by M. HASSENFRATZ, who succeeded in proving its superiority to that of LAVOISIER and his associates. The establishment of this theory depended upon proving that the oxygenous portion of the atmosphere alone is absorbed from the inspired air. This was indeed the generally received opinion of chemical philosophers for some time; but as it has lately been brought into question, and the contrary asserted, it is proper to notice the variation of theory which has thence been attempted to be made.

Mr. DAVY has endeavoured to prove that azote, as well as oxygen, is partly absorbed by the lungs in respiration. As the azote which disappears in breathing is not to be found in the products of respiration, it has been thence concluded that it is absorbed by the blood. The experiments of Mr. DAVY led him to believe that atmospheric air is absorbed by the blood in an undecomposed and unaltered state; that it is afterwards decomposed in that fluid by the affinity of the red particles for its oxygen; that the greater part of the azote is liberated without undergoing any change, and again given out and mixed with the air in expiration; but that a minute portion of it remains condensed in the serum and coagulable lymph, and passes with them to the left ventricle of the heart. A minute examination, and decision as to the correctness of these facts, will not be attempted in this place. But admitting the facts to be justly stated, the following changes will appear to be produced

by respiration. The blood in passing through the lungs absorbs a portion of air, and carries it along with it through the blood vessels. In the course of the circulation this air is gradually decomposed by the blood, the oxygen and part of the azote entering into new combinations, while at the same time a portion of azote, of carbonic acid and water, is evolved. On returning to the lungs, the blood receives a fresh quantity of air, and, at the same time, discharges the azotic gas, carbonic acid gas, and watery vapour which had been formed during the circulation. This theory of respiration by Mr. DAVY is believed to be the latest of those deserving especial notice which belong to the eighteenth century.[b]

Besides the general theories of respiration which have been just stated, it will be proper to mention a few of the leading discoveries on this subject, and the authors to whom they respectively belong.

It was not till Dr. PRIESTLEY had discovered that venous blood acquires a scarlet colour when brought into contact with oxygen gas, and arterial blood a purplish red colour when put in contact with hydrogen gas; or, in other words, that oxygen gas instantly gives venous blood the colour of arterial, and that hydrogen, on the contrary, gives arterial blood the colour of venous;—it was not till the accomplishment of this discovery that philosophers began to attempt any explanation of the phenomena of respiration.

To Dr. PRIESTLEY likewise belongs the merit of that instructive experiment of enclosing blood in a bladder, and exhibiting the passage of oxygen through its moistened coats, by the florid colour thence imparted to the blood, in order to demon-

[b] *Researches Chemical and Philosophical*, by HUMPHRY DAVY, 8vo. 1800. P. 477, &c.

strate the mode in which oxygen finds its way through the coats of the blood-vessels in the lungs.

Dr. Goodwin was the author of the celebrated experiment, in which the action of the lungs is exhibited by opening the chest of a living dog, and exposing to view the motion of the lungs and heart. In this experiment, the blood driven from the right ventricle of the heart into the pulmonary artery, appears of a dark venous complexion; but on its return from the lungs, by the pulmonary veins, it is changed to a bright vermilion colour. He also demonstrated that the bright florid appearance of the blood, derived from oxygen received in the lungs, is absolutely necessary to enable it to stimulate the left ventricle of the heart, in order to produce the contraction which propels the blood into the aorta. For whenever an intermission in the motion of the lungs denied the access of air, the blood in the pulmonary veins returning to the heart was of a dark purple colour, and was no longer sufficient to excite the due contraction of that organ.

That respiration is the source of the *temperature* of animals, or of what is commonly called *animal heat*, is one of the results of the light recently thrown on that function. Physiologists long ago observed that animals which do not breathe have a temperature little higher than the medium in which they live. This is the case with fishes and many insects. Man, quadrupeds and birds, on the contrary, have a temperature considerably higher than the ordinary states of the atmosphere. It may be proved that the heat of all animals is proportional to the quantity of air they breathe in a given time. These circumstances are sufficient to establish the fact that the heat of animals depends upon respiration. On this subject the philosophical world are under strong obligations to Dr. Black, whose doctrine of *latent heat* offered the

first hints towards an explanation of the cause of temperature in breathing animals. It was observed, in a preceding chapter, that the discoveries of this eminent chemist place him in a high rank, and constitute much of the foundation of that chemical philosophy which is the boast of modern times, and the source of numberless improvements in the arts and sciences. He early perceived the light which his doctrine of latent heat was calculated to shed on the temperature of animals, and with great sagacity availed himself of the advantage.

Dr. Black formed the following theory of animal heat. He supposed part of the latent heat of the air received into the lungs to become sensible; that the temperature of that organ and of the blood passing through it is consequently raised; and that the blood, thus heated, communicates its temperature to the whole body. This opinion was plausible, but by no means free from objections; for admitting the truth of it, the heat of the body ought to be highest in the lungs, and thence gradually to abate in proceeding to the extremities; which is not the fact. The author's attempts to support this theory were so feeble as to induce the belief that he himself considered it as untenable.

Lavoisier first announced, in 1777, that animal heat was owing to the caloric disengaged from oxygen gas, during its decomposition and condensation in the lungs. Dr. Crawford, in 1779, adopted this opinion, and supported it by experiments. They both believed that all the changes produced by respiration are performed in the lungs; and their theory differs but little in reality from that of Dr. Black. They supposed the oxygen gas of the atmosphere to combine in the lungs with the hydrogen and carbon emitted by the blood; that, during this combination, the oxygen gas sets free a great quantity of caloric; and that

this caloric is not only sufficient to maintain the temperature of the body, but also to carry off the new formed water in the state of vapour, as well as the carbonic acid, and to raise considerably the temperature of the air expired. According to the opinion, therefore, of these philosophers, the whole of the caloric which supports the heat of the body is extricated in the lungs. But on this hypothesis the question will arise, how it happens that the heat of each individual is maintained nearly the same in every part of his body? To explain this, Dr. CRAWFORD endeavoured to prove, by well devised experiments, that the capacities for containing caloric in arterial and venous blood, are nearly as 11.5 to 10; that is to say, if it require a quantity of caloric, represented by 11.5, to heat a pound of arterial blood from zero to 30°. it will only require a quantity as 10, to heat a pound of venous blood from zero to 30°.

On these experiments the following conclusions were formed. Oxygen gas is decomposed in the lungs, in consequence of the affinity of the carbon and hydrogen of the blood for oxygen being greater than that of oxygen for caloric, or of the carbon and hydrogen for the blood. In proportion as the oxygen unites with the hydrogen and carbon, water and carbonic acid are formed; the caloric combines with the venous blood, which, in losing its carbon and hydrogen, becomes arterial, and has its capacity for containing caloric immediately augmented. The blood, now become arterial, in its circulation through the body, gradually absorbs carbon and hydrogen, repasses to the venous state, and sets free a portion of caloric in proportion as its capacity for containing it is diminished. According to this doctrine, therefore, the almost uniform temperature in all parts of the

body is owing to the gradual and successive changes of arterial blood to venous throughout the body, and of venous to arterial in the lungs. It is also agreeable to this doctrine to suppose that the higher temperature of some parts of the body may be caused by arterial blood absorbing more carbon and hydrogen, or, in other words, becoming more rapidly venous.

However ingenious this explanation deserves to be regarded, it has not been deemed satisfactory. The difference in specific caloric, admitting the calculation to be accurate, is justly thought too small to account for the great quantity of heat which must be evolved. And if the opinion of some be true, that the carbonic acid gas and water emitted in expiration are not formed in the lungs, but during the circulation, this doctrine must be altogether untenable.

This defect in Dr. CRAWFORD's hypothesis might perhaps be remedied, if Mr. DAVY's supposition of air entering the blood and combining with it in the state of gas, should be admitted. In that case it is evident that the air at first would only set free part of its caloric, and that the remainder must gradually escape in the successive stages of the circulation. In another mode, likewise, that defect has been attempted to be remedied. It has been alleged, that the evolution of caloric attends almost all chemical combinations; that all animal fluids which pass through capillary vessels and glands, for the purposes of secretion, are subjected to such new chemical combinations, as must incessantly give out heat; and that this glandular action thus accounts for the more general and copious source of animal temperature.

From the view of respiration now given, it results that the final causes of that function are these: 1. To complete the assimilation of the blood;

2. To produce and support animal heat: 3. To impart a quality to the circulating fluid which enables it to stimulate the left side of the heart.

After this account of respiration, which, from its great importance in the animal economy, has been treated of more at large than was at first intended, it is proper to proceed to the consideration of *Digestion.* This function in its full extent includes all the changes which aliment undergoes for the formation of chyle, whether such changes are effected in the mouth, stomach, or small intestines. But as it is the knowledge of the office of the stomach which has received the most important improvement within the period assigned for this retrospect, and as the other parts of the process, such as mastication, deglutition, the admixture of saliva, &c. were tolerably well understood before, it is obviously expedient to direct the chief attention to the former branch of the subject.

GALEN supposed *heat* to be the principal cause of digestion, and this opinion so generally prevailed for a long time that the term *coction* was used by the greater part of physiologists instead of *digestion.* But, though the effect of heat in assisting and expediting digestion is universally admitted, no person will now contend that it is the sole cause.

During the eighteenth century, the theorists of digestion have ascribed it either, singly, to *fermentation*, *mechanical action*, or the *operation of a solvent* in the stomach; or to the combined effects of two or all of these agents.

Dr. BOERHAAVE, dissatisfied with the opinions of all who had gone before him on this subject, and leaning strongly to mechanical theory, admitted *fermentation* as one cause of digestion, but principally ascribed it to *trituration*, *pressure*, and powerful *quassation.* The analogy of digestion,

as performed in certain birds, seems to have led him into this doctrine. He had observed the *ostrich* to swallow pieces of iron and glass, evidently for the purpose of trituration, because the sound of *grinding* was perceptible to those who listened. In the *granivorous birds* he had noticed, in addition to the crop furnished with salivary glands to macerate and soften their food, a gizzard, or second stomach, provided with strong muscles to triturate the grain, and the eagerness with which they swallow gravel to assist the operation. Considering the predominance of mathematical doctrines at that period, it is not wonderful that this great mechanic in medical science was desirous to explain digestion on mechanical principles.

Early in the eighteenth century Mr. CHESELDEN appears to have imbibed some correct notions on this subject. He remarked, that in serpents, some birds, and several kinds of fishes, digestion seemed to be performed by *some unknown menstruum;* as he frequently found in their stomachs animals so totally digested, *before their form was destroyed*, that their very *bones* were rendered soft.

About the same time M. REAUMUR instituted a set of experiments concerning this function; and, by a number of clear and decisive facts, exhibited in his excellent memoirs on this subject, proved the existence and agency of a solvent in the stomach.

About the year 1777, the Abbé SPALLANZANI, Professor of Natural History in the University of Pavia, began, by his numerous experiments and diversified inquiries, to throw new light upon the function of digestion. Having directed his inquiries to a great number of animals, man, quadrupeds, birds, fishes and amphibia, he was led to divide an extensive variety of stomachs, differing from one another in many important points of

structure and functions, into three classes, the *muscular*, *intermediate* and *membranous*.[c]

Among such as have *muscular* stomachs, he particularly examined common fowls, turkeys, ducks, geese, pigeons, &c. In these that organ is provided with very large and powerful muscles, capable of grinding down to powder the grains and other aliment which they receive. He proved by his experiments, that such muscular stomachs can pulverize pieces of glass, and abrade and smooth the rugged edges of the hardest substances, even of granite, without any injury to the animal. He resorted to experiments to illustrate the force of trituration in these stomachs, which a person of less ardour in this kind of investigation, and more tenderness for the animal creation, would certainly have spared. He caused a leaden ball, beset with needles fixed in it, with the points outwards, to be forced down the throat of a turkey. He contrived to make another swallow a ball of a still more formidable construction; for it was armed with small lancets, sharp at the points and edges, instead of needles: both balls were covered with paper, to prevent the throat of the animal from being hurt as they descended, but fixed so loosely as to fall off in the stomach. The consequences proved the force and ruggedness of these muscular stomachs; the needles and lancets were broken to pieces and voided without wounding or injuring the animal.

But notwithstanding such proofs of the strength and activity of this kind of stomach, he ascertained that the solvent powers of a *gastric liquor* are combined even in these animals with the operation of gastric muscles, to effect the process of digestion, and that they mutually assist each other.

[c] *Dissertations relative to the Natural History of Animals and Vegetables*, vol. i.

SPALLANZANI's next experiments were directed to animals possessing what he called *intermediate* stomachs; such as are endowed with muscles less thick and strong than the former, but more so than the *membranous* stomachs. Among these he examined and made experiments upon the raven, the crow, the heron, and many other birds, which have this intermediate structure of the organ in question. It was found in these birds, as might be expected, that digestion is performed by a more equal combination than in the former cases, of the forces of muscular action and a gastric menstruum secreted for the purpose.

These interesting experiments on digestion were finished with those animals which have thin *membranous* stomachs. This class comprehends an immense number of species, as man, quadrupeds, fishes, reptiles, &c. No triturating power is possessed by the stomachs of this description; for their muscular fibres seem to exert little other effect than that of propelling their contents through the pylorus. In proof of this is alleged the well known fact that cherries and grapes are often received and voided entire from the human alimentary canal. The solvent power of the gastric liquor, in these animals, was found almost solely to effect the dissolution of food, after the preparatory treatment of mastication, and the admixture of saliva. To prove the efficacy of this powerful agent in the process of digestion, SPALLANZANI enclosed different kinds of animal and vegetable food in linen bags, and in wooden tubes, perforated in such manner as to admit the entrance of the gastric juice; these he swallowed himself, and, after a short interval, the contents of them were found to be dissolved and discharged. He satisfied himself that no trituration could take place by employing tubes so thin and weak that the slightest pressure would

have crushed them to pieces; yet not one was ever broken, nor could he ever perceive the smallest depression or fissure. Of the active solvent powers of this gastric fluid he gives many remarkable proofs. In a dog it not only dissolved bones, but was found to corrode the enamel of two *dentes incisores* taken from the jaw of a sheep. And, from some experiments on himself, he observed it to be sufficiently powerful to digest not only muscular fibres and membranes, but tendon, cartilage, and even bone itself, when not of the hardest kind.

The conclusions arising from these experiments of the Professor of Pavia were, about the same time, confirmed and illustrated by others equally ingenious and interesting, undertaken by Dr. EDWARD STEVENS.[d] He prevailed on a person to swallow little hollow spheres of silver, filled with food of different kinds; the sides of the spheres being perforated in various places, the gastric juice had access to, and, of course, could act upon their contents; and when voided, the food within them was found to be dissolved, either partially or entirely, according to the nature of it, and the time allowed for its remaining in the stomach.

The celebrated Mr. JOHN HUNTER is to be always enumerated among those who have improved our knowledge on the subject of digestion. In addition to many other improvements, he endeavoured to solve the question, how the stomach itself can remain unhurt, while it encloses so penetrating and active a solvent as the gastric juice, seeing that it consists of materials similar to a large proportion of our food? He ascribes to the *living principle* in animals the power which the stomach possesses to resist that action of its gastric fluid which penetrates and dissolves the aliment. In

[d] See his *Inaugural Dissertation*, published at Edinburgh, in the year 1777.

confirmation of this he observes, that intestinal worms can remain a considerable time unhurt in the stomach, while they retain the principle of life; but as soon as they lose this, they are dissolved and digested, like other substances. In like manner he asserts, that while the stomach itself retains this living principle, the gastric fluid cannot exert its solvent powers on it; but when the person dies, particularly in cases of violent and sudden death, that fluid immediately begins to corrode it, and sometimes is found to have made its way entirely through the coats of the stomach into the cavity of the abdomen.'

It seems, therefore, to result from all the most successful inquiries concerning digestion, made during the eighteenth century, that this function is variously performed by *mechanical action*, or *chemical solution*, in different animals, according to the structure of the stomach, and the nature of the gastric secretion; and that in man, and many other tribes of animals which possess similar organization of this viscus, it is effected by the solvent operation of the gastric fluid independently of trituration.

Besides the points in physiology already noticed, many others might be mentioned which have undoubtedly received much elucidation and improvement in the course of the late century. The senses of *Vision* and *Hearing*, which had previously derived a great deal of light from the endeavours used to investigate them, have been examined with still more minuteness and success within the last hundred years, and many new facts and principles concerning them have been satisfactorily ascertained. But the doctrines of *Secretion* and *Nutrition*, though so fundamental in a thorough acquaintance with

[e] *Phil. Trans.* vol. lxii. p. 447.

the animal economy, notwithstanding all the diligence and ingenuity bestowed on them by a multitude of physiologists, have not been cultivated with equal success, and indeed can scarcely be said to be better understood at this time than they were at the close of the seventeenth century.

The celebrated doctrine of the *Vitality of the blood*, which was first distinctly taught in modern times by HARVEY, found a new and able advocate in Mr. JOHN HUNTER, who maintained, in his lectures, that the *fluids* as well as the *solids* were possessed of the principle of life. The arguments by which he endeavoured to support this doctrine are not only ingenious and forcible in themselves; but they derive additional strength from the theory of respiration, and the principles of pneumatic chemistry, which are now generally received.

Within the period assigned to this retrospect, the functions and laws of the *Nervous System* have been investigated with the greatest zeal. WILLIS, in the seventeenth century, had laid the foundation of this improvement, by his accurate description of the brain and nerves. VIEUSSENS, in his *Neurographia*, pursued the subject with much discernment. Early in the eighteenth century HOFFMAN still further prosecuted this inquiry; and at a more advanced period of it, Dr. CULLEN exerted all his powers in the same course. The use made by the two latter of the knowledge gained on this subject, in constructing their medical theories, will be mentioned more particularly under the succeeding head.

Comparative physiology has been cultivated with great ardour and success in the course of the century now under contemplation. HALLER, though chiefly devoted to human physiology, did not neglect the instruction which may be derived from a

comparative view of the functions of man and other animals. The HUNTERS, the MONROS, and most of the other distinguished anatomists of the late century, laboured in this field with the utmost zeal and assiduity. The great anatomical work planned by VICQ-D'-AZYR, which was mentioned under the preceding head, was principally designed to deduce a body of physiological principles, which, by comparison, might illustrate the functions of the whole animal kingdom. The numerous comparative inquiries concerning animals of warm and cold blood, and those which, in respect of the function of generation, are distinguished into viviparous and oviparous, have already thrown much new and important light on this branch of knowledge, and opened a train of investigation which hereafter will probably lead to still more interesting results. Mr. BLUMENBACH, of Göettingen, whose physiological labours deserve very high praise, has greatly distinguished himself by his *Specimen Physiologiæ comparatæ inter animantia calidi sanguinis Vivipara et Ovipara.*[f] The recent work of M. CUVIER, on comparative anatomy, furnishes an abundance of the materials requisite for the extension and improvement of this part of science.

Within a few years the irritability of vegetables has attracted much of the attention of physiologists; and the interesting facts which it offers have been naturally combined with the great body of corresponding facts presented by the animal kingdom. Such general views penetrate deeply into the economy of nature, and the light they afford may be clearly discerned in an estimate of the progress and present state of medical opinions. To the account before given of the labours of

f Vide *Comment. Soc. Reg. Scient. Gotting.* vol. ix.

HALLER, in the former part of the century, to ascertain the fundamental laws of the animal economy, it would be improper not to add those lately undertaken for the same purpose by the Abbé FONTANA. By a series of experiments, in which accuracy and industry are eminently conspicuous, the Abbé has proved, beyond the possibility of doubt, the existence of a principle in the animal fibre, independent of nervous energy, from which result, on the application of certain exciting powers, the various actions suited to the support of animal life. This principle, which with HALLER he denominates *irritability*, has been since proved by a great variety of facts to be susceptible of two remarkable changes in the living fibre, viz. increase and diminution, depending upon the abstraction or accumulation of stimulant powers. In support of this general principle, which is supposed universally to belong to animated nature, the aid of many facts, derived from the vegetable kingdom, has been recently added. As the functions of the animal economy, viz. sensation and voluntary motion, to which the nerves seem alone to be necessary, are never satisfactorily observed in the vegetable kingdom, it is presumed that the absence of nerves in this kingdom can in no degree diminish the analogy which is attempted to be established between these two grand divisions of created nature. It is contended by these physiologists that there is a principle of action common to both kingdoms, upon which their respective functions chiefly depend, and which is believed to be governed by the same laws as are laid down for the regulation of the irritability of the animal fibre. By the term *irritability*, nothing more is here meant than merely to express a fact; which fact is this, that certain parts of animals and vegetables are possessed of a property, by which, upon

the application of a stimulus, the ends of a straight fibre approach nearer to each other, and the diameter or area of a curved or circular one is diminished.

For the facts respecting the functions of vegetables from which the above mentioned principles have been drawn, the world is indebted, among many others, to HALES, GREW, DUHAMEL, BONNET, BUFFON, SPALLANZANI, DES FONTAINES, GMELIN, INGENHOUZ, HUNTER, BROUSSONET, DARWIN, and many of the most distinguished disciples of the *Linnæan* school. And when the progress made by them in vegetable physiology is considered in relation to the discoveries obtained by HALLER and FONTANA in animal physiology, it will not appear surprizing that inferences and doctrines of the greatest interest have recently been thence deduced. The physiological principles of BROWN and DARWIN, which now occupy the attention of so large a portion of the medical world, are conclusions resulting from that great body of facts. But of these more particular notice will be taken under the next head.

Theories of *Generation* have engaged much attention during the last century. Towards the close of the preceding one, LEUWENHOECK attracted notice by his microscopical inquiries concerning the *semen masculinum*, in which he believed that he saw numerous animalcula; one of which was destined to form the rudiments of the future embryo. This supposed discovery gave rise to a theory not yet altogether exploded, according to which the womb of the female only affords to the embryo a lodging, and the requisite supplies of nourishment.

M. BUFFON endeavoured to prove that the female holds a more important share in the process of generation. He asserts that animalcula, or or-

ganic particles, are to be found in the semen of both sexes; and he derives that of the female from the ovaria, denying, at the same time, that any ovum exists in those parts. But in this he is commonly supposed to be mistaken.

The opinion more generally adopted within a few years is, that an impregnation of the ovum by the influence of the semen masculinum is essential to conception. The Abbé SPALLANZANI has thrown much light on this obscure subject; he labours to prove, by a variety of experiments, that the animalcule exists entire in the female ovum, and that the male semen is only necessary to vivify and put it in motion.

This part of physiology furnishes one among numerous instances, in which modern improvements in science serve to support and confirm religious faith. It was mentioned, in the last chapter, that toward the close of the seventeenth century, the doctrine of *equivocal generation* began to be discarded by the ablest physiologists; still, however, it continued to find some advocates long after the beginning of the eighteenth. The *atheistical* tendency of this doctrine is obvious; for if a single animal could be produced in this manner, what should prevent the universe from having come into existence without an intelligent author? Accordingly this mode of accounting for the production of animals was, in general, fondly embraced by those who wished to exclude God from the creation and government of the world. But all the experiments and discoveries which were made, on the subject of generation, in the course of the century under review, have served to discredit this doctrine; so that it is now considered, by the most eminent naturalists, as exploded. It is true, difficulties, or rather darkness and doubt, still exist, particularly with respect to the genera-

tion of one class of animals; but all modern experiments seem to concur with analogy in showing, that the doctrine in question is unphilosophical and untenable. Indeed, it may be asserted that every successive step which has been taken in developing the structure and functions of the animal frame, and every new ray of light that has been shed upon this interesting subject, in modern times, have made more apparent the absurdity of atheism, and furnished new demonstration of the existence and wisdom of the GREAT FIRST CAUSE.

THEORY AND PRACTICE OF PHYSIC.

At the period of the revival of learning in the fifteenth century the medical system of GALEN was restored, and began generally to prevail. Early in the sixteenth century the famous PARACELSUS laid the foundation of a chemical system, which attracted much notice, and excited a violent contest with the followers of GALEN. The efficacy of the remedies employed by PARACELSUS and his disciples, and the bold and confident terms in which their virtues were extolled, procured, with many, the reception of his system, and for a long time supported its popularity and fame. But the regular and systematic physicians still generally maintained the doctrines of GALEN, and, by their superior learning, were enabled to keep possession of the schools of physic till the middle of the seventeenth century.

About this time the discovery of the *circulation of the blood* began to be generally received, which, together with that of the *receptacle of the chyle*, and the *thoracic duct*, gave a heavy blow to the Galenic theory. In the destruction of this theory, the operation of the revolution in philosophy, ef-

fected by Lord BACON; deserves likewise to be particularly mentioned. His method of philosophizing exhibited the futility of the numberless hypotheses which are found in the system of GALEN, and excited a disposition to observe facts and make experiments.

At the beginning of the seventeenth century the contest between the Galenical and Chemical physicians was carried on with the utmost animosity and indecorum. The influence of the writings of GALILEO, aided by the discovery of the circulation of the blood, introduced mathematical reasoning into the doctrines of medicine. The progress made about this time in the knowledge of the organic structure of animals, which was greatly facilitated by an acquaintance with the circulation of the blood, had extended the application of mechanical philosophy, in order to explain the phenomena of the animal economy. The agency of the nerves or moving powers of animals was, at that time, so little understood, that physicians universally, whether Galenists, Chemists, or Mathematicians, considered the state and condition of the fluids as the cause of diseases, and the medium of the operation of remedies. Hence arose the *Humoral Pathology*, which then predominated in every system of opinions, however diversified in other respects. While the followers of GALEN were daily losing ground from the circumstances which have just been stated, the Chemists gained some accession of strength from the doctrines of the humoral pathology. Chemical reasoning was readily adopted to explain the various acrimonies which were supposed to infest the circulating mass, and thereby to give origin to diseases. On this ground the use of stimulating, cordial and sudorific remedies became fashionable throughout Europe, in the latter half of the seventeenth cen-

tury. This doctrine, which exhibits the last glimmering of the chemical sect, attained its utmost height, and was taught and practised with the greatest applause by the celebrated FRANCIS DE LE BOE, more known by his Latin name of SYLVIUS, Professor of Medicine in the University of Leyden, who continued for many years the medical oracle of Europe, and gave an eminent degree of eclat to the seminary to which he belonged. With this physician *acidity* formed the principal source of morbid affections, and he extended and supported his doctrine by every analogy, that the learning of that period and the utmost ingenuity could devise. Agents adapted to correct or expel this acrimony were exalted into universal remedies, and supplied every intention of cure.

To oppose the *cardiac* and *alexipharmic* doctrines of the *Sylvian* school, which often consisted in doing violence to nature, and could not fail, when carried to extremes, of increasing the mischiefs it was intended to remove, required the powers of a great and original mind. For this purpose the illustrious SYDENHAM was eminently suited. The sagacity of this physician led him, by an almost seeming intuition, to discern and obey the dictates of nature, and to afford every proper assistance without urging her to useless and hazardous efforts. The effects of this revolution were immediately seen in the improved treatment of acute diseases of every class, when, instead of the fashionable alexipharmic remedies, intended to promote imaginary depurations, by additional heat and increased stimulus, a safer *antiphlogistic* or cooling plan was adopted, with a view to unload the oppressed habit, to reduce excessive action, and to preserve the strength of the system for the subsequent conflict.

Towards the close of the seventeenth century, the application of mathematical reasoning to me-

dical theory had attained its greatest height. The mathematicians were alike hostile to the Galenists and Chemists. With equal aversion they discarded the *qualities*, *elements*, *temperaments*, *concoctions* and *crises* of the Galenist; and the *Archæus* of VAN HELMONT, the *salts*, the *sulphur*, the *mercury*, the *acids*, *alkalies*, *effervescences*, *fermentations*, *ebullitions* and *deflagrations* of the Chemist. Instead of such objects as these, the mathematical pathologists endeavoured to direct the public attention to *mechanical tension* and *relaxation*, to *true* and *spurious plethora*, to *obstruction* and *error loci*, to *excessive* or *deficient motion of the fluids*, and to their *lentor*, *tenuity* or *dissolution*. Flushed with their success in astronomical inquiries, and with their dominion over the globe we inhabit, the Mathematicians confidently imagined they should find no difficulty in subjecting the province of medicine to their extensive empire. The Chemists of that day had little to urge against the claims of these invaders. Their loose, visionary and capricious doctrines (for such was undoubtedly much of the chemistry of that period) could make no successful opposition to the *axioms*, *postulates*, *propositions*, *lemmas*, *problems*, *theorems*, *demonstrations*, *corollaries*, and *calculations*, with which the mathematicians were constantly armed when they entered into controversy. BELLINI, of Florence, as was formerly observed, was among the first medical writers who introduced mechanical reasoning; and soon afterwards the application of it was extended still further by Professor BORELLI, who prosecuted the subject with great learning and zeal. The laborious calculations made by these mathematicians of the force exerted by the heart in propelling the blood,[g] and by the stomach in the di-

[g] BORELLI believed that he made it clearly to appear, that the force of the heart is equal to 180,000 *pounds* weight; while Dr. KELL's calculation reduces the power of the left ventricle to *five ounces*.

gestion of food, are signal examples of the delusion which then occupied the most respectable minds. But no person at this period seems to have proceeded further in this course than the celebrated Dr. PITCAIRN, who, during some of the last years of the seventeenth century, held a medical professorship in the University of Leyden. He flattered himself that medical principles might be supported by a clear train of mathematical reasoning, which would defy the attacks of the sophist, and which would be exempt from the fluctuations of opinion and prejudice. His works are full of postulates, data and demonstrations. And, after a long parade of geometrical forms, he supposes himself to have arrived at the *ne plus ultra* of the science of medicine.[b]

The mechanic theory of medicine is now so obsolete that even the most illiterate affect to smile at the absurdities of that kind, which were often uttered by learned men. But it should be remembered that, amidst all its extravagance, it was an important step towards improvement; and it will certainly be rescued from contempt by the recollection that it was once honoured with the great names of BORELLI, BOERHAAVE and NEWTON.

The Italian and Dutch schools, though hurried into wild extremes by the rage of mathematical reasoning which then prevailed, possessed an unrivalled celebrity at the end of the seventeenth century. The history of medicine at that period particularly dwells on the merits and services of many of their physicians, and abundantly justifies their claim to distinction.

Thus stood the science of medicine at the be-

b PITCAIRN concludes his chapter, *De divisione Morborum*, thus triumphantly; "*Quapropter non dubito me solvisse nobile problema, quod est, dato morbo, invenire remedium. Famque opus exegi.*" Vide *Elementa Medicinæ Physico-Mathematica*, p. 177. The annals of science can scarcely furnish a more striking example of the delusion of enthusiasm, or the blindness of prejudice.

ginning of the eighteenth century. At that auspicious period, every part of science began to assume a more correct and improved aspect, and, from the vast and diversified labours of the preceding age, it had become more practicable to select and combine the materials necessary to construct the theories of medicine which were speedily to appear. Accordingly, very early in the century three new and considerably different systems were presented to the world in the writings of STAHL, HOFFMAN, and BOERHAAVE. And they are the more worthy of examination at the present time, as they not only engrossed the attention of physicians during a great part of the century, but as even now they are not without influence upon principles and practice.

Notwithstanding the seniority of STAHL and HOFFMAN by a few years, they were, as theorists of medicine, strictly the cotemporaries of BOERHAAVE. It is judged expedient to begin with the latter in this place, not only on account of the great importance and celebrity of his system, but because his doctrines held a closer alliance with the predominant philosophy of that period, and those of the two others with the succeeding theories.

HERMAN BOERHAAVE began his career as a teacher and a writer, about the commencement of the eighteenth century. In all respects he deserves to be considered as one of the greatest men that ever adorned the medical profession. He possessed a vast range of erudition, and had cultivated the auxiliary branches of medicine with such assiduity, that he particularly excelled in anatomy, chemistry and botany. No physician, since GALEN, has so authoritatively swayed the empire of opinion, nor been more universally obeyed in the schools of physic. Endowed by nature

with a powerful, logical and systematic mind, he seemed to be designed to clear away the rubbish of error and prejudice with which he found medical learning overgrown, to collect knowledge from every source, and to present it to the world embodied in that clear, consistent, elegant and luminous state of arrangement, which constitutes him the parent of medical theory.[i]

In framing his system of physic, BOERHAAVE seems diligently to have studied the writings of both ancient and modern physicians, from HIPPOCRATES down to SYDENHAM. Though extremely partial to the mechanical principles of BELLINI and PITCAIRN, he appears to have endeavoured, as much as possible, to divest himself of prejudice in favour of former systems, and to make a candid and genuine selection of truth from every source. Besides availing himself of the experience of HIPPOCRATES, and other observers of nature in every age, he drew many of his doctrines from the chemical as well as mathematical philosophy of the period in which he lived.

i This great man was born at a village near Leyden, in the year 1668, and died in 1738. The space which he filled in the scientific world, for upwards of forty years, was so great, that no one acquainted with the history of the period in which he lived is ignorant of his immense learning, his singular talents, or his numerous and inestimable works. His moral and religious character is as worthy of commemoration as his intellectual endowments. "Some, though few," (says his great disciple, HALLER) will rival him in erudition; his divine temper, kind to all, beneficent to foes and adversaries, detracting from no man's merits, and binding by favours his daily opponents, may perhaps never be paralleled." He was at once a practical philosopher and an eminent christian. No one was ever less moved by the attacks of envy and malice; no one ever bore with more firmness and resignation the evils of life. Simplicity was the characterisic of his manners. He was easy and familiar in his converse; perfectly free from parade of every kind; grave and sober in demeanor, and yet disposed to pleasantry, and occasionally indulging in good humoured raillery. He was almost adored by his pupils, whose interests he regarded with the kindness of a parent, and whom, when sick, he attended preferably to any other patients. Piety of the most amiable cast, was wrought in the very habit of his soul; the perusal of the scriptures was one of his habitual and stated employments; and the business of every day was preceded by the devotional exercises of the closet. *General Biography* by JOHN AIKEN, M. D. and others, vol. ii.

BOERHAAVE's *Institutes*, which is his *theoretical* work, contain all the discoveries in anatomy and physiology known at that time; and that system likewise of pathology and therapeutics which he thought proper to adopt. His *Aphorisms*, or *practical* work, with all their imperfections, contain perhaps more medical learning than any book extant of the same size.

The most prominent feature in the *Boerhaavian* system is the attempt to explain the phenomena of the animal economy, whether in health or disease, upon mechanical principles. Under the impression of such opinions he considered the body chiefly as an hydraulic machine, composed of a conic, elastic, inflected canal, divided into similar less canals, all proceeding from the same trunk, which being at last collected into a retiform contexture, mutually open into each other, and send off two orders of vessels, lymphatics and veins, the former terminating in different cavities, the latter in the heart; that these tubes are destined for the conveyance of the animal fluids, in the circulation of which he supposed life to consist, and on the free and undisturbed motion of which he judged health to depend. He therefore believed *obstruction* to be the proximate cause of most diseases; and this obstruction he supposed to be produced either by a constriction of the vessels, or by a *lentor* in the blood.

In BOERHAAVE's doctrine of *obstruction*, which is fundamental in his system, he makes an important use of LEUWENHOECK's supposed discoveries concerning the blood. That eminent microscopical investigator had imagined that he found each globule of red blood composed of six serous globules, the serous of six lymphatic globules, the lymphatic of six other globules still finer, and so

on in a similar progression till these particles were diminished down to the finest and most subtile of all, namely, the nervous fluid. According to BOERHAAVE's opinion, the diameters of the vessels also decreased in the same regular series, perfectly corresponding with the size of the globules. This explains his frequent introduction of *error loci* in his account of obstruction and inflammation. But as the notions of LEUWENHOECK on this subject are now generally exploded, so likewise must be the inferences and doctrines grounded upon them.

It was taken for granted by BOERHAAVE, and by almost all preceding medical writers, that diseases always arise either from some depravity of the fluids, or some fault in the composition or cohesion of the simple solids; and that wherever such disorders exist, they are always susceptible of a definite character, and placed within the reach of the senses. He believed the fluids to be liable to contamination by acid and alkaline acrimony, and by other morbific matters variously constituted, and to be disordered by lentor and excessive tenuity. The simple solid, according to his doctrine, is subject to very frequent changes of condition, from weakness and excessive stiffness or elasticity, and from laxity and rigidity.

BOERHAAVE supposed the *proximate cause of fever* to consist in a lentor or viscidity prevailing in the mass of blood, and stagnating in the extreme vessels. To this he attributed the cold stage of fevers, and all its consequences. It is true that he afterwards introduced, though with some doubt and hesitation, as an additional part of the proximate cause, an *inertia* of that portion of the nervous fluid which is destined to the heart. It was one of his positions, that the morbid heat in fever, being a symptom only, might therefore be disregarded.

His doctrines of *acid* and *alkaline acrimony*, of *fermentation*, and of *morbific matter* in the blood, were evidently derived from the chemical theories which then prevailed. And from the mechanical philosophy he borrowed his opinions concerning the diseases of the simple solid; concerning deficient or excessive circulatory motion; concerning obstruction and *error loci*;[j] and concerning the *lentor* and morbid tenuity of the fluids.

The objections which have been made to this system are numerous and important. Though it was exhibited by the illustrious author in a very attractive and elegant form, and long possessed an unrivalled degree of reputation; yet it appears that time and the great mass of improvements since made in every department of medical knowledge have effected its entire overthrow.

The leading defects in the Boerhaavian system are too close an adherence to the humoral pathology, and a constant neglect of the moving powers of the animal body. In his notions of various acrimonies and of lentor he yielded almost entirely to a hypothetical mode of reasoning. In his consideration of the diseases of the solids, he dwelt too much on the changes of the simple inanimate solid, and too little on those of the living or vital solid. Most of the faults, however, of his theory are chargeable rather on the time in which he lived, and on the general imperfection of knowledge at that period, compared with the present, than on any defects in himself. It is surprizing that he considered his system as having advanced so near to perfection; for though he lived almost forty years after he had formed it, he seems to have made in all that time but few corrections or additions which can be thought to be of any moment.

j By this phrase is meant the entrance of particles of the blood into vessels whose capacity is too small to transmit them.

The next medical theorist whose system demands notice, is GEORGE ERNEST STAHL, Professor of Medicine at Halle, in Saxony, who was so illustriously distinguished for his improvements in Chemistry, mentioned in a former part of this work. For a long time this was the prevailing system in Germany; and the traces of it may be discerned in many modern writings, which still maintain a high degree of authority.

The fundamental principle of this system is that the *rational soul* of man presides over, and governs the whole economy of his body both in health and sickness. In all ages physicians have supposed the existence of a power or faculty in the animal economy, by which it is enabled to resist injuries, and to correct and remove the diseases to which it is exposed. This power, by many of the ancients, was vaguely termed *nature*, and under the denomination of *vis conservatrix et medicatrix naturæ*, has been long celebrated in the schools of medicine.

STAHL explicitly founds his system on the principle, that this *power of nature*, so much spoken of, is nothing else than a faculty of the rational soul.[k] On many occasions he imagines the soul to act independently of the state of the body; and that, without any physical necessity arising from a particular state, the soul, merely in consequence of its intelligence, perceiving the application of noxious powers, or the approach of disease from any cause, immediately excites such motions in the body as are suited to obviate the hurtful or perni-

[k] It appears that physicians are by no means unanimous in their mode of understanding the *Stahlian* theory. In proof of this the following quotation is offered from a writer of high reputation." STAHL has been reproached for having ascribed too much to the soul; but they who have done this, either have never read his works, or did not understand them. The soul, according to STAHL, is a being purely material; or rather he admitted no soul; only the vital principle of an organized body." ZIMMERMAN *on Experience*, vol. i. p. 98.

cious effects which might otherwise take place. He sometimes mentions two opposite principles or propensities in the human frame; one constantly and uniformly tending to corruption and decay, the other to life and health; the former founded on the elementary composition of the body, the latter depending immediately on the energy of the mind or soul. By means of the nerves, the influence of the soul is extended to every part of the system, and if their action be impeded or deranged, disease is the unavoidable consequence. A plethora and lentor of the blood is therefore the proximate cause of disease, as the energy of the mind is thereby diminished, and its action on the body obstructed. Hence, to lessen the quantity, and to break down the *lentor* of the blood, the soul exerts all its powers, and excites hæmorrhages, sweats, diarrhœas, fevers, and the like. These efforts are sometimes happy and successful; at other times they fail to answer the purpose, and may occasionally even do mischief, especially when opposed by the improper interference of physicians, or by some internal accidental or organic impediment.

Such is the theory of health and disease which STAHL delivered to his pupils and readers, and which he endeavoured to recommend and support by all his great powers of learning and ingenuity. But, in his ponderous volume on this subject, entitled *Theoria Medica Vera*, we look in vain for the logical arrangement, the elegance and perspicuity which are constantly displayed in the writings of BOERHAAVE. There were not wanting, however, in various parts of Europe, especially in Germany, many followers of STAHL, who thoroughly imbibed his principles, and pursued his practice in the treatment of diseases. Among these, JUNCKER and CARL, particularly the former, in his work, entitled *Conspectus Therapeiæ Specialis*, have given

a much better account than himself of the doctrines and opinions of their Preceptor.

To many, the *Stahlian* theory appears so fanciful and absurd, that they can scarcely think it deserving of a serious refutation. But still, it has been often thought there are such appearances of intelligence and design in the operations of the animal economy, that many eminent physicians have been induced to countenance similar opinions. Among these may be mentioned PERRAULT, in France; NICHOLS and MEAD, in England; PORTERFIELD and SIMSON, in Scotland; GAUBIUS, in Holland; and perhaps WHYTT, of the University of Edinburgh.

Of the writers who adopt the opinions of STAHL, in a greater or less degree, NICHOLS and GAUBIUS may be considered as two of those who deserve the highest consideration.[l] The consequences result-

[l] In an elegant prelection by Dr. NICHOLS, which he published under the title of *Oratio de Anima Medica*, we find the following visionary excesses of *Stablianism*. According to him, the soul at first forms the body, and governs it ever afterwards. He ascribes it to the prudence of the soul, that the *semen* is not perfected in males, till the strength and vigour of the system are prepared for generation; and he sees her sagacity in the slow and gradual eruption of the small-pox, thereby dividing the force of the disease and greatly lessening the danger. After violent pain or exhaustion by fatigue, the soul hides herself in sleep, in order to recruit the body or to rectify any disorder; hence the inclination to sleep after child-birth; hence also the frequent sleeping of infants, whose *anima* is so engrossed with attention to the vital motions as to mind little else. When too much distracted and perplexed with external things, she often neglects her internal duties; and hence health is so much impaired by fear, grief, love and other violent passions. He also accuses the soul of occasional fits of caprice and ill-humour, by which she is led to disregard her office, and indulge herself in freaks of petulance and perverseness. In fevers, the sudden failing of the strength and pulse ought to be regarded, he tells us, as signs of the soul's abandoning the body in despair, and intending soon to relinquish it. Nay, he sometimes imputes to her cowardice and folly in suffering the body to sink under diseases by no means deadly in their own nature; in falling into undue alarm and trepidation, thereby becoming unfit to discharge her office, and being often precipitated into mischief and injury; and in deserting her post in a moment of peril, when, were she always wise enough to neglect things of inferior moment, and to attend solely to the preservation of the body, she might not only prevent diseases, so far at least as they proceed from internal causes, but might protract the life of man to an indefinite period, it may be, to a thousand years!! Vide *Oratio de Anima Medica*, passim.

ing from such doctrines may be discovered from what appears in their writings. If it be thought proper to admit such a capricious government of the animal economy as these writers in some instances maintain, it will follow that a rejection must take place of all the physical and mechanical reasoning which is employed concerning the human body.

Nor are the consequences of such doctrines confined to reasoning and speculation. It appears that STAHL and his followers, in the whole of their practice, whatever may have been asserted to the contrary, were very much governed by their general principles. Trusting to the wisdom and constant attention of nature, they proposed the *art of curing diseases by expectation.* As practitioners, therefore, they seem to have been cautious, indecisive and timid in the extreme; they adopted, for the most part, only very feeble, inert and frivolous remedies; and they strenuously opposed the use of some of those which are most efficacious and the most deserving of confidence.

It would be doing injustice, however, to the *Stahlian* practitioners not to acknowledge that they greatly enriched medical science, by their incessant and unwearied observation of the history and phenomena of diseases, and were instrumental in directing the attention of physicians to those salutary efforts of nature, which cannot be too accurately understood, nor too diligently pursued in the treatment of diseases.

FREDERICK HOFFMAN is the last of the three illustrious systematists whose different theories of medicine were disclosed to the world in the beginning of the eighteenth century. He was the colleague and rival of STAHL in the University of Halle, and a most learned and voluminous writer. For more than fifty years he flourished as a prac-

titioner and author, enjoyed a splendid reputation, and added greatly to the mass of medical science.

HOFFMAN had the discernment early to perceive the error of those who suffered themselves to be led away by the hypothetical doctrines of the *humoral pathology*, and the other wild opinions then prevailing among the chemical and mechanical theorists. He set himself to cultivate and improve what BOERHAAVE had neglected. He diligently undertook to explore the functions and diseases of the *nervous system*, and wisely concluded that noxious causes much more generally affect the *solid moving powers* than the *fluids* of the animal body. He admitted, indeed, into his system some portion of the mechanical, Cartesian and chemical doctrines which had previously prevailed; but these did not blind him to the light which he derived from the pathology of the nervous system. According to him, *atony* and *spasm* are the great sources of disease; and he proceeded so far as to maintain that all internal disorders are to be ascribed to some preternatural affection of the living solid.[m]

HOFFMAN's pathology of fever deservedly excited great attention. Though he undertook, like many of his predecessors, to inquire into the intentions of nature, he certainly contemplated her process in fever with more sagacity, and rejecting chemical and mechanical analogies on this subject, endeavoured to discover the cause of fever in the peculiar nature and affections of the vital motions. He supposed the noxious cause producing fever, (in the language of the schools, the remote cause) to operate first on the living solids, producing a general spasm of the nervous and fibrous system, beginning in the external parts, and proceeding

[m] Vide FRED. HOFFMAN. *Opera Omnia Physico-Medica*, vol. i. *Med. Rat. System.* tom. iii. § 1. cap. iv. p. 308. Geneva edition.

towards the center. In consequence of this, a contraction of the vessels of the extremities must of course take place, impelling the circulating fluids in an increased ratio on the heart and lungs; which stimulating these organs to increased action, the fluids are thereby repelled towards the extremities, and thus the phenomena of fever are produced. There are, therefore, according to HOFFMAN, two distinct sets of motions in fever; the first, from the extremities towards the center, arising immediately from the spasm, and accompanied by a small pulse, anxiety and oppression; the second, from the center towards the surface, which is the effort of nature to resolve the spasm, and indicated by a full strong pulse and increased heat. The first of these sets of motions is baneful, and sometimes fatal; the second is medicinal and salutary. By these views of the nature of fever, he supposes, the physician ought to be directed in counteracting the morbid actions, and in assisting the sanative process of nature."

The general pathological doctrines of HOFFMAN undoubtedly contain a great deal of truth, and form a distinguished era in the history of medical theory. Though his opinions on the subject of fever, however improved by a succeeding theorist, must be supposed to be rapidly falling into disrepute; still they evince deep and just views of the animal economy, and much observation of the nature and phenomena of diseases.

The originality of HOFFMAN'S scheme of pathology has been brought into question; and nobody can doubt that he received many important hints from preceding writers. VAN HELMONT seems to have been the first who turned his attention to the nervous system with any discernment. Some,

[a] HOFFMAN. *Op. Omn.* vol. i. tom. ii. p. 10.

indeed, have gone so far as to pronounce him the author of the *spasmodic theory of fever;* but whatever intimations he may be supposed to have given of febrile spasm in different parts of his huge indigested work, they are surely too crude and indistinct to be considered in the light of a theory of fever. Dr. WILLIS, in the latter part of the seventeenth century, had also laid some foundation for this doctrine, in his *Pathologia Cerebri et Nervorum;* and BAGLIVI, in the beginning of the eighteenth, had improved it still further in his *Specimen de Fibra Motrici et Morbosa.*[o]

The theory of diseases last stated formed the ground-work of a system which was adopted and taught for many years, with great celebrity, by the learned Dr. CULLEN, of Edinburgh. He assumed the general principle of HOFFMAN, that the phenomena of health and disease can only be explained by referring them to the state and affections of the primary moving powers of the animal economy. He endeavoured to extend the application and uses of this principle as far as possible; and for this purpose he expunged certain hypothetical doctrines of the humoral pathology, which HOFFMAN had suffered to remain, and to depreciate the value of his system.

According to the hypothesis embraced by Dr. CULLEN, the *brain*, with all its ramifications and dependencies combined to form the nervous system, is the primary organ of the human body, whose different conditions constitute the various states of health and disease. In pursuance of this hypothesis, the circulation of the blood, instead of being the principal of the vital functions, as in

o Dr. FERRIAR, of Manchester, in the preface to his *Medical Histories and Reflections*, makes the following remark: "The assertion of a spasmodic state of the extreme vessels in the cold stage of fevers, commonly ascribed to Dr. HOFFMAN, was first made by Dr. PIERS, in his comprehensive treatise *De Febre*."

the Boerhaavian doctrine, occupies only a secondary degree of importance in the animal economy. Dr. CULLEN supposed it to be evident that the nervous power, in the whole as well as in the several parts of the nervous system, and particularly in the brain, which unites the several parts, and forms them into a whole, is at different times in different degrees of mobility and force. To these different states he applies the terms of *excitement* and *collapse*. To that state in which the mobility and force are sufficient for the ordinary exercise of the functions, or where these states are any way preternaturally increased, he gives the name of *excitement;* and to that state in which the mobility and force are not sufficient for the ordinary exercise of the functions, or when they are diminished from the state in which they had been before, he gives the name of *collapse.*[p]

Dr. CULLEN's opinions concerning the nature of fever have excited much attention and controversy in the medical world. He delivers an account of them in the following words: "Upon the whole, our doctrine of fever is explicitly this. The remote causes are certain sedative powers applied to the nervous system, which, diminishing the energy of the brain, thereby produce a debility in the whole of the functions, and particularly in the action of the extreme vessels. Such, however, is, at the same time, the nature of the animal economy, that this debility proves an indirect stimulus to the sanguiferous system; whence, by the intervention of the cold stage, and spasm connected with it, the action of the heart and larger arteries is increased, and continues so till it has had the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of re-

[p] See his *Institutes of Medicine*, § 126 to 135.

storing therefore their action, and thereby especially overcoming the spasm affecting them; upon the removing of which, the excretion of sweat, and other marks of the relaxation of excretories, take place."[q]

As HOFFMAN's theory of fever evidently produced that of CULLEN, it is proper to ascertain the points of variance between them. According to HOFFMAN, the first effect of the remote cause of fever is the spasm, producing a re-action, as has already been stated in the account given of his doctrine. CULLEN introduced a previous link into the chain of effects: he contended that the first effect of the noxious power (the remote cause) was a general debility, consisting in a diminution of the energy of the brain. To this debility he attributes the spasm, and to the spasm the re-action of the heart and arteries; which re-action continuing till the spasm is resolved, removes the debility and the disease. According to HOFFMAN, the spasm belongs to the class of motions which he pronounces to be baneful; but CULLEN presumes it to be salutary, and therefore ascribes it, in the language of the schools, to the *vis medicatrix naturæ.*

Dr. CULLEN's theory of fever was received with great applause, and, for a considerable time, maintained its ascendency, especially in the British dominions and in the United States. Few, however, at the present day, seem to consider it as tenable. The author has not undertaken to explain in what manner the debility in the whole of the functions proves an indirect stimulus to the sanguiferous system; nor how this stimulus operates in exciting the cold stage and spasm. The co-existence of atony and spasm in the same vessels

q *First Lines of the Practice of Physic*, vol. i. p. 55.

is regarded by many as an insuperable difficulty. No explanation is offered of the mode in which the action of the heart and larger arteries is augmented by the intervention of the cold stage and spasm. The process by which this augmentation restores the energy of the brain, and extends such energy to the extreme vessels, is also left entirely in the dark. His introduction of the *vis medicatrix naturæ* is liable to almost all the objections of the *anima medica* of STAHL, and must be considered as no better than a confession of ignorance. In all these respects, and many others, this celebrated doctrine rests on hypothetical ground. This will appear the more surprizing, as the learned author professed to disclaim all those hypothetical opinions which go to the formation of theories; and seems to have been persuaded that his doctrine of fever was only an induction from a generalization of facts.

It would be injustice, however, to Dr. CULLEN, not to subjoin that his merits are extensive and universally acknowledged. He was a diligent and faithful collector of facts. His works often contain admirable descriptions and sagacious discriminations of diseases. His great excellence seems to have consisted in methodical arrangement. But it is commonly remarked, and apparently with truth, that he was much more successful in demolishing the systems of others than in erecting his own.

The next system which demands attention, in the order of time, is that of Dr. JOHN BROWN, of Edinburgh. This original, eccentric, unfortunate man framed a physiological and pathological theory, which, amidst great errors, inconsistencies and contradictions, contains many vigorous conceptions of truth and nature, and some which it is

probable the improvements of future times will serve much further to elucidate and confirm.

Brown assumed, as the foundation of his system, the existence of an unknown principle, on which, when acted upon by stimuli, all the phenomena of life, health and disease depend, and which he denominated *excitability.* This excitability he believed to vary in different animals, and in the same animal at different times. As it is more intense, the animal is more susceptible of the action of exciting powers. Exciting powers, or stimuli, may be referred to two classes; either external, as heat, food, wine, poisons, contagions, the blood, secreted fluids and air; or internal, such as the functions of the body itself, muscular motion, thought, emotion and passion. Excitability produces no effect, or rather does not exist, unless exciting powers are applied; for if they are entirely withdrawn, death as certainly ensues as when excitability is consumed by the excessive application of them; life is therefore a *forced state.* Excitement may be, in just measure, too great or too small. Stimuli applied in due proportion produce that just degree of excitement which constitutes the state of health. If the stimuli are diminished below the healthy proportion, he supposed the excitability to accumulate; if increased beyond this proportion, to be expended; and on these opposite states he attempted to found a theory of diseases, denominating the former *direct*, the latter *indirect debility.* Diseases he divided into two classes, *Sthenic* and *Asthenic*, or such as arise from increased or diminished excitement. He believed no agent on the living body could properly receive the title of *sedative;* and insisted that every power that acts on such a body is stimulant, or produces excitement by expending excitability. Whatever powers therefore may be employed, and however

they may vary from such as are habitually applied to produce due excitement, they can only weaken the system by urging it into too much motion, or suffering it to sink into languor. He is supposed to have included both the nervous and muscular powers under the term of excitability; yet he did not consider the excitability as a property residing in and depending upon the mechanism of particular parts, but as an uniform, undivided property, pervading the whole system, which cannot be affected in any one without being affected in a similar manner in every other part.

Dr. Brown supposes the proximate cause of fever to consist in debility, which may be either direct or indirect, according to the nature of the noxious powers previously applied to the system. Hence he makes two divisions of fevers: 1st. Those which depend on direct debility, such as intermittent fevers, typhus, &c. 2d. Those which depend on indirect debility, such as malignant fever, confluent small-pox, plague, &c. Having therefore assigned to fever its place in his series of descending excitement, he neglected particularly to inquire into its symptoms, or to enlarge on its treatment. Thus debility, which was the first link in the chain of Dr. Cullen, formed, according to the theory of Dr. Brown, the essence of fever. He altogether denied the existence of spasm; he ridiculed re-action and the *vis medicatrix naturæ;* and he wholly overlooked the phenomena of morbid association and morbid heat.

In a word, the basis of Dr. Brown's system seems to be this; in whatever state of the body, whether healthy or diseased, there always exists either too strong or too weak an excitement. Hence there can be only two species of disease, two methods of treatment, and two kinds of medicinal agents.

In framing his system, BROWN seems to have combined the *irritability* and *sensibility* of HALLER to form his *excitability;* and to that eminent physiologist he was probably more indebted for the first hints of his doctrine, and especially for the facts on which it is founded, than to any preceding writer. His general principles are supposed more correctly to suit the condition of the animal economy in health than in disease. The fundamental position, that excitability is accumulated and expended in the inverse ratio of the stimulation, appears to be confirmed by many facts concerning the application of heat and the taking in of food, during the healthy states of the body, or when it is only affected by cold or hunger. Whether it equally holds good in the state of disease is more liable to doubt. He was acquainted with only one mode of action of the living principle, that which has been described by a succeeding theorist under the name of irritation; while he was wholly regardless of the influence of sensation, volition and association. He neglected, or was ignorant of most of the important relations which the doctrines of modern chemistry bear to the animal economy, and to the composition of animal matter. These, however, comprise only a small portion of the criticisms to which this system is exposed.

But with all these, and many more faults, it cannot be denied that the praise of genius and originality in an eminent degree belongs to Dr. BROWN. The simplicity, comprehensiveness and consistency, as well as novelty, of his system, gave it a very seducing appearance, and contributed greatly to its prevalence. One of the greatest excellences of it, as applied not only to the practice of physic, but to the general conduct and preservation of health, is, that it impresses on the mind a

sense of the impropriety and danger of suddenly going from one extreme of excitement to another.[r]

Near the close of the eighteenth century, a new medical theory was presented to the world by Dr. ERASMUS DARWIN, in his celebrated work which he entitled *Zoonomia.*

According to this theory, there is, in every part of the animal system, a living principle, which is termed *Sensorial Power*, which is considered as the immediate cause of all its motions, and is supposed to be secreted in the brain and spinal marrow. This sensorial power is capable of being acted upon in four different ways, or it possesses, in other words, four different faculties or modes of action, which, in their passive state, are denominated *irritability, sensibility, voluntarity*, and *associability;* and in their active state, or during exertion, they are termed *irritation, sensation, volition*, and *association.* The faculty termed irritation is exerted, and produces fibrous motions in consequence of the stimulus of external bodies acting on any part of the system where sensorial power resides. That of sensation is exerted in consequence of the stimulus of pleasure or pain, occasioned by fibrous motions originally produced by the sensorial power of irritation. That of volition is exerted in consequence of the stimulus of desire or aversion, occasioned by fibrous motions, which had been previously produced by the sensorial power of sensation. That of association is at first exerted in consequence of the stimulus of fibrous motions, previously occasioned by irritation, sensation, or volition.

Having thus stated the various modes of action of the sensorial power, Dr. DARWIN proceeds to deliver the other fundamental principles of his theory.

r See BROWN's *Elements*, passim.

During the application of any of the above-mentioned stimuli, the sensorial power becomes exhausted; on the contrary, while any of them are withdrawn, it becomes accumulated.

In order to illustrate and establish his important doctrine of association, Dr. DARWIN asserts that there are various circles of associate motions in the animal system, which may take their names from that faculty of the sensorial power by which they are introduced. Those circles, for example, which are introduced by an irritative motion, may be termed irritative associate motions; and, in like manner, the sensitive and voluntary associate motions are produced and denominated. All these several circles of motions act on one another by means of the sensorial power of association; they may be affected by other sensorial motions, such as those of irritation, sensation and volition; and they may be considered as compounded, each one of smaller circles; as for instance, the great circle of irritative associate motions may be supposed to be made up of smaller circles of the same kind.

Conformably to this scheme of association, the introductory link of any circle of associate motions may have its action increased, diminished, or sustained in the natural degree. The first may take place either in consequence of excess of sensorial power, the stimuli being in their accustomed degree; or in consequence of excess of stimuli, the sensorial power being in its natural degree; or in consequence of excess of both. The second may arise either from want of sensorial power, the stimulus being in its usual degree; or, from subduction of stimuli, the sensorial power being in its natural quantity; or from want of sensorial power and subduction of stimuli. The third takes place, when both the sensorial power and the stimuli are in proper degree. In some cases, the morbidly in-

treased, as well as the morbidly diminished actions of the introductory link of a circle of associate motions are followed by similar actions of the other links; at other times, by contrary actions: In the former case there is *direct*, in the latter, *reverse* sympathy. The morbidly diminished actions arising from subduction of stimuli are sooner relieved than such as are occasioned by want of sensorial power. The morbidly increased actions which arise from excess of sensorial power are more violent than those which are produced by excess of stimuli. Hence inflammatory diseases are commonly preceded by subduction of stimuli, and consequent accumulation of sensorial power. But when excess of sensorial power is acted upon by excess of stimuli, the exertion which follows is far greater and more destructive. Hence the mortification of frozen limbs when brought near the fire.

According to Dr. DARWIN, all those parts which are subjected, during health, to perpetual action, as the heart and arteries, accumulate sensorial power faster when impeded, than those which are subjected only to intermitted action. When stimuli, which are usually applied to any particular part of the system, are withdrawn, an accumulation of sensorial power takes place there, proportioned to the subduction of those stimuli and to the state of that part.

The exertion of any part of the system, Dr. DARWIN believes, may be proper, or greater, or smaller than it ought to be. All diseases, therefore, originate in the exuberance, deficiency, or retrograde action, of the faculties of the sensorium, as their proximate cause; and consist in the disordered motions of the fibres of the body, as the proximate effect of the exertions of those disordered faculties. Hence, in conformity with the principles before mentioned, health, inflamma-

tion, and the various degrees of exhaustion of sensorial power, or torpor from accumulation of sensorial power, will be found to ensue.

After premising these general principles, and deducing from them many important doctrines concerning the sound and diseased states of the animal system, Dr. DARWIN proceeds to offer his theory of fever, which, whatever may have been the remote cause of it, he supposes *to consist in the increase or diminution of direct or reverse associated motions.* It commences in a particular organ, occupies one or more disordered tribes or trains of associate motions, and is more or less complicated according to the number of such disordered tribes.

Dr. DARWIN's doctrine of fever may therefore be considered as follows. When the torpor of any part of the system, owing to deficient irritation, occasioned either by the subduction of the natural stimuli, and consequent accumulation of sensorial power, or by the application of powerful stimuli and consequent exhaustion of the same living principle, is such as to occasion diminished action of that part, the following effects will take place: the next link of the tribe of associate motions falls also into a torpor, from defect of excitement of the sensorial power of association, and so the subsequent one, till a general torpor affects the system. This constitutes the cold paroxysm of fever. This general torpor remains till the accumulation of the sensorial power of association is formed, which overbalances that defect of excitement of association, and then the torpor ceases, and the hot fit of fever is produced. When the torpor of the part first affected is occasioned by the subduction of the natural stimuli, this is likewise thrown into increased action during the hot fit. But if it arise from exhaustion of sensorial power, the part remains in a torpid state during the hot fit. The torpor

induced by the subduction of natural stimuli, as it is overcome at the end of the cold fit, always gives rise to fevers of strong pulse; since, in such case, all the parts of the system have their actions increased during the hot fit. The torpor arising from the exhaustion of sensorial power produces various effects, according to the part in which it takes place. When seated in the stomach, it always produces continued fever, with weak pulse. In this case, in consequence of the torpid state of the stomach, the arterial system likewise falls into torpor, from defect of the excitement of association; therefore an accumulation of the sensorial power of association takes place in the arterial system. But this accumulation is so great, owing to the uninterrupted actions of the stomach, catenated with those of the arterial system, that it affects the next link of the associate train, that is, the capillaries of the skin, with increased energy. Hence these last, in this kind of fever, are perpetually exerted with great increase of action. When torpor affects the secerning vessels of the brain, it produces fever with arterial debility. In this case, the secretion of sensorial power being more or less impaired, languid actions of every part of the system must be the consequence. In fevers from this cause, the action of the capillaries is diminished with that of all the rest of the system. Hence the heat of the body does not rise above the natural standard, and sometimes it is even lower throughout the course of the disease; a phenomenon which serves to direct the attention to this cause. When torpor, from exhaustion of sensorial power, affects other parts of the system sympathetically associated with the stomach, such as the liver, spleen, &c. the stomach falls into torpor, from defect of the power of association, and, in like manner, the arterial system, till a general

torpor is formed, which constitutes the cold fit. During this cold fit, an accumulation of the associative sensorial power takes place in the stomach, arterial system, &c. which more than compensates this defect of excitement in the sensorial power of association; consequently all these parts are thrown into increased action. This constitutes the hot fit, which, according to the degree of accumulation of the sensorial power of association, and the force of stimuli applied to it, will produce various effects. Hence various kinds of intermittent fevers; or these increased actions may be in such degree as to produce sensation, and thereby occasion inflammatory fevers: or, lastly, such increased actions may, in consequence of their violence, produce a smaller, or greater, or complete exhaustion of sensorial power in some part essential to life. Hence various kinds of continued fevers with arterial debility, or even death.

On this extensive scale of sympathy and association, Dr. DARWIN endeavours to account for a great number of the phenomena of diseases, and especially for those of fever. From the same doctrine he deduces the indications of cure, and explains the operation of the remedies by which these indications are fulfilled.[s]

The extensive and accurate observations of the laws of organic life, the sagacious conjectures and profound reflections which abound in the *Zoonomia*, must be greatly admired. The most competent judges seem to concur in pronouncing it the ablest medical work of the eighteenth century. In col-

[s] The number of compartments which belong to the system of medical philosophy delivered in *Zoonomia*, the cycles and epi-cycles, and the variety and intricacy of the relations they bear to each other, render it difficult to comprize, within a short compass, such an abstract as can do justice to the ingenuity and learning of the celebrated author. If this attempt should be found unsuccessful, the difficulty of combining clearness and brevity in sketches of such a kind will not be forgotten.

lecting and arranging the facts belonging to animal life, and unfolding the influence of morbid association, which involves the essence of diseases, the author undoubtedly excels all preceding writers. Still, however, his work must be allowed to labour under great faults and radical deficiencies. In many instances he gives the rein to his imagination, and suffers fanciful speculations to usurp the place of facts and legitimate reasoning. His doctrine of the retrograde action of the absorbents, of which he makes such frequent and important use, in a great many various states of disease, may be mentioned as one of those which seem to want confirmation. And there is reason, indeed, to apprehend that errors still more fundamental and essential have crept into this vast plan for binding together the scattered facts of medical knowledge, and converging into one point of view the laws of animated nature. That interesting doctrine common to Dr. BROWN and Dr. DARWIN, that all the phenomena of life are to be explained on the principle of the excitability or sensorial power being accumulated and expended, in the inverse ratio of stimulation,† however elegantly it may admit of illustration by the use of heat, light and food, after coldness, darkness and hunger, seems to fail in its application to many morbid states of the system. It appears, on the contrary, often to happen that excitement and excitability are increased at the

† The originality of some of the leading doctrines delivered by Dr. DARWIN has been called in question. He himself recognizes the coincidence of some of his opinions with those of Dr. BROWN; but contends that he arrived at his conclusions on those subjects by a different train of reasoning from that of the Scottish theorist. He also declares, and asserts that his friends are able to attest the fact, that the greater part of his work had lain by him *twenty years* before its publication. These facts evidently preclude the probability of his being much, if at all, indebted to Dr. BROWN. Dr. HARTLEY seems to have been the first who, clearly and with effect, employed the principle of *association* to account for the phenomena of the animal economy. (See *Observations on Man.*) It is not improbable that Dr. DARWIN was indebted to him for some hints in forming his great work.

same time, and perhaps still oftener that they are diminished and wasted together.* The radical defect in every inquiry of this kind is our unacquaintance with the nature of the vital principle, a defect which the scantiness and imperfection of all human knowledge does not seem likely speedily to supply.

In a review of the systematic arrangements of medical knowledge, which have been undertaken in the course of the eighteenth century, it would be improper to pass without notice the learned and laborious work of M. LIEUTAUD, first Physician to the Monarch of France, published nearly fifty years ago, under the title of *Synopsis Universæ Medicinæ*. This singular work was attempted on the plan of collecting all the facts that experience has taught, without any reasoning concerning their causes. But the total want of method, perhaps the unavoidable result of the plan, continually introduced such confusion as to render this performance much less instructive and useful than might have been expected.

It may also appear improper to omit some notice of a theory of fevers, formed by the late Sir JOHN PRINGLE, which, from its peculiar character, has been denominated the *putrid theory*. Having been long conversant with the malignant diseases of camps and military hospitals, that respectable physician adopted the notion of miasmata and contagions operating like a ferment on the animal fluids, and thereby producing putrid fevers. This doctrine of fevers, however, is regarded as so vague and improbable that few have been induced to adopt it.

* The author is aware that Dr. DARWIN's theory makes provision to meet this difficulty and to explain it; but whether the explanation be sufficiently satisfactory, remains to be decided.

Among living authors, many have been so justly distinguished for their efforts to improve the theory and treatment of diseases, that it would be inexcusable to omit their names in this retrospect. Our learned and excellent countryman, Dr. Rush, stands in the first rank of medical theorists in the United States. His doctrine of the *proximate cause of fever* is the result of a long, vigilant and enlightened attention to the phenomena of febrile diseases, and to the various plans of cure which his extensive learning enabled him to survey. The pathology of the blood-vessels, which had been too much neglected by preceding theorists, seems to have employed a principal share of his attention in framing his doctrine of fevers; which makes their proximate cause consist of *a convulsion in the sanguiferous, but more particularly in the arterial system.* In conformity to this opinion, his decisive and energetic treatment of febrile diseases is chiefly directed to the reduction of excessive, and the liberation of oppressed action, by depletion, and other analogous means; or to the support of feeble action by appropriate stimulants; and afterwards to the transfer of remaining morbid action, of whatever kind, from the vascular system to parts less essential to life."

The inquiries concerning the nature and constitution of *pestilential fluids*, which have been prosecuted with great learning and ingenuity by Dr. Mitchill, so radically concern many of the leading doctrines of diseases, that they may justly be said to embrace a new theory. His doctrine, as was before mentioned, is this, that the acid offspring of putrefaction, composed of oxygen and azote (which latter he denominates *septon*) chemically united, forms the febrile poison whose ravages are

" *Medical Inquiries and Observations*, vol. iv.

often so fatally expericnced; and that alkaline and calcareous substances afford the best means of extinguishing its virulence. The evidence he adduces to maintain this doctrine, drawn from ancient as well as modern authorities, and from facts observed in all parts of the globe, does equal honour to his diligence and erudition.

In Germany there are several eminent physicians who lately have published systems of medical doctrines, which are said considerably to differ from all preceding ones, and which attract much attention in that enlightened part of Europe. Among these, the names of REIL, ROSCHLAUB, and HUFELAND deserve particularly to be mentioned; but the confinement of their opinions to the German language prevents them from being sufficiently known to give any account of them in this review.

Within a few years Dr. REICH, of that country, has presented to the public a new theory of fevers, which seems, however, to have attracted but little attention, and it is believed is now falling into neglect. His fundamental doctrine is, that fevers are produced by destruction of the equilibrium between oxygen and the other principles which enter into the composition of the animal body; and that fevers may be most speedily cured by introducing and restoring equally, to all parts of the body, such a quantity of oxygen as is necessary to re-establish the equilibrium between the different constituent parts. And hence he infers that acids, especially the mineral acids, and particularly the muriatic acid, are more adapted than any other remedies to the cure of fevers.

Among the improvements which occurred towards the close of the eighteenth century, *Pneumatic Medicine* holds a distinguished rank. The knowledge of the gases in the last quarter of the century assumed a regular and scientific form;

and the analysis of the atmosphere by SCHEELE and LAVOISIER, at that period, gave a new aspect to many doctrines of the animal economy, both in its healthy and diseased state. When the composition of the atmosphere, its influence in the function of respiration, and the constitution of animal matter, were ascertained, it was natural to suppose that many of the gases received into the lungs in breathing might become powerful remedies. M. FOURCROY took the lead in this inquiry, and was soon assisted by the exertions of Dr. GIRTANNER. Dr. BEDDOES was the first who introduced the pneumatic practice into Great-Britain, where it appears to have been more assiduously cultivated, and applied to a greater variety of medical purposes than in any other country. The names of DAVY, THORNTON, and TOWNSHEND are also to be mentioned among the most enterprising cultivators and improvers of this practice. The sanguine expectations of those who first proposed this mode of applying remedies seem hitherto scarcely to have been answered; but how far industry and ingenuity may hereafter vary and improve the practice, must be left to the decision of time.

The methodical arrangement of diseases, called *Nosology*, had its birth in the eighteenth century. This consists in a systematic distribution of diseases into classes, orders, genera, and species, on the plan of natural history. This scheme of arrangement was first conceived by SYDENHAM, and afterwards by BAGLIVI, towards the close of the seventeenth century. For the first actual attempt the world is indebted to FRANCOIS BOISSIER DE SAUVAGES, an eminent Professor of Medicine at Montpelier, who published his laborious work in the early part of the eighteenth century. After SAUVAGES, this subject was cultivated by LINNÆUS, to whose genius for arrangement every branch of

natural history is so greatly indebted; by Rodolphus Augustus Vogel, of Goëttingen; by John Baptist Sagar, of Iglaw, in Moravia; by Dr. Cullen, of Edinburgh; by Dr. Macbride, of Dublin; and by Dr. Darwin, in his Zoonomia; besides some others of inferior note. For some time past, the influence of Nosology has been evidently on the decline. The ever-varying forms of diseases are so dissimilar to the steady and fixed character of the objects belonging to the three kingdoms of nature, that it is difficult to account for the confidence and zeal with which this subject has been cultivated by some distinguished names. It cannot, however, be denied, that nosological inquiries have produced many good effects; they doubtless promote the discrimination of diseases; and many of the questions they involve are extremely interesting to the practical physician. An undue reliance upon nosology, and allowing it to substitute names for realities, seem to have produced the mischief which has thrown it into discredit.

The *cool regimen in fevers* constitutes one of the most universally acknowledged improvements in the practice of physic of the eighteenth century. A revolution on this point was begun by the new and interesting doctrines which the sagacity of Sydenham had enabled him to develope towards the latter part of the preceding age. Every day's additional experience gave some new confirmation of this important practice. A further acquaintance with the diseases of hot climates, where the pleasantness as well as the efficacy of coolness in fevers had overcome the opposition both of theory and prejudice, gave a deep blow to the alexipharmic and heating system. The good effects of coolness in the small-pox, and more especially in the improved stages of the inoculation of that dis-

ease, seem to have settled the determination of physicians to extend the same remedy to the treatment of fevers. And the conviction since wrought by experience and observation, both on the public and medical mind, may now be said to have established this improvement on the firmest basis.

It is remarkable that although the use of cold air and cold water had been recommended in ardent fevers by HIPPOCRATES, GALEN, CELSUS, and most of the celebrated physicians of antiquity, as well as by many eminent moderns, it was discountenanced by BOERHAAVE and all the disciples of his school. In his commentator VAN SWIETEN, and in the writings of PRINGLE, CLEGHORN, LIND, and even CULLEN, little is to be found in commendation of this salutary practice. It remained for the learned and judicious Dr. CURRIE, of Liverpool, in Great-Britain, to extend the cool regimen in fevers, by adding to the use of cool air and cold drinks, the affusion of cold water over the surface of the body, when in a very dry and heated state. This remedy, the application of which, by long experience, he has been enabled precisely to regulate and determine, may be confidently pronounced to be one of the greatest of modern improvements in the practice of physic.[w]

In the course of the century under review, some particular diseases have been treated with more success than in former periods. It may not be improper to direct the attention of the reader to a few of the most remarkable of these.

The triumph of medicine over the *Small-Pox* has been completed in the eighteenth century. This scourge of the human race has exceeded all other diseases in the number of its victims, and in the

[w] See Dr. CURRIE's *Medical Reports on the Effects of Water, cold and warm, as a Remedy in Fever, and other Diseases.*

frequency of deformity, blindness, and other dreadful consequences inflicted on such as escaped with their lives.

The practice of *Inoculation* has reduced this frightful malady to such a degree of mildness and safety that it no longer excites the terror of the community. The date of this interesting discovery is lost in the obscurity of tradition and immemorial usage. Traces of it may be found among the traditions of many former ages in Great-Britain, particularly in Wales and the Highlands of Scotland, in Italy, France, Germany, Denmark, Sweden, and some other parts of Europe, in Africa and Asia, particularly in Hindostan and China.*

But the eighteenth century may boast of the first regular and satisfactory notices of this noble improvement, and of making it to be understood and practised in an intelligent manner among all the enlightened part of mankind. It is generally said that the *Circassians* first inoculated their children in order to rear them as slaves for the Turkish Se-

* It is a remarkable fact, that, in all the countries above mentioned, there is satisfactory evidence of inoculation for the small-pox having been practised by the common people, for many years before its introduction by the physicians of Great-Britain; and, in some of them, as far back as tradition can be traced. It is also a still more remarkable fact, that in *Wales*, in the Highlands of *Scotland*, among the ignorant peasantry of *Germany*, in the interior of *Africa*, and in several parts of the *Asiatic* Continent, distant as they are from each other, differing widely as they do, in manners, customs, laws and religion, the art of communicating this disease by inoculation was designated by the singular phrase of *buying the small-pox*; because it was superstitiously imagined that inoculation would not produce the proper effect, unless the person from whom the variolous matter was taken received a piece of money, or some article in exchange for it. See Dr. WOODVILLE's *History of Inoculation.* How shall we account for so many different and distant nations agreeing in so remarkable a phrase to express inoculation, and agreeing also to connect with it such a superstitious ceremony? How shall we account, further, for this art being confined chiefly to the *common people*, or the less civilized part of mankind, while the learned were ignorant of it? May it not be admitted as one proof of the *great antiquity* of the practice, that precisely that portion of the community, whose habits, in every country, are in general most simple, uniform, and stationary, were found to retain a practice which the more polished had lost?

raglio; and it was certainly first introduced into *Constantinople*, from *Georgia*, towards the end of the preceding age. From Constantinople the British nation received an account of the practice of it by the celebrated Lady M. W. MONTAGUE, who caused the disease to be thus communicated to her own children. In 1721, inoculation was first regularly adopted in England; and in the succeeding year, the operation being performed upon some of the children of the Royal family, it soon began to be in vogue. Objections both of a physical, moral and religious kind were urged against this new practice, with great zeal and intemperance, by many respectable persons of the medical and clerical professions, as well as by others of inferior character. These objections, for some time, excited scruples in the minds of many well-disposed people, and greatly retarded the progress of inoculation. Having at length, however, surmounted these difficulties, the value of the discovery became every day more highly rated, and before the middle of the century might be considered as established upon the firmest basis.

In the year 1721, and in the same month in which the daughter of Lady MONTAGUE was inoculated in England, this mode of communicating the small-pox was introduced at Boston, in Massachusetts. Dr. COTTON MATHER, one of the Ministers of that town, having observed, in a volume of the *Philosophical Transactions*, printed in London, some communications from Constantinople and Smyrna, giving a favourable account of the practice, and the small-pox beginning, about the same time, to spread in the town, he recommended to the physicians of his acquaintance to make trial of inoculation. They all declined it excepting Dr. BOYLSTON. He began with his own children and servants. But the degree of odium

which he drew upon himself by this measure is scarcely credible. The physicians in general highly disapproved his conduct. Dr. DOUGLASS,[y] one of their number, who had received a regular medical education in Scotland, his native country, stood foremost in the ranks of opposition. He wrote, declaimed, and employed all his influence against the intrepid innovator. The medical gentlemen were joined by the populace, who were so much inflamed against what they esteemed a species of murder, that Dr. BOYLSTON was in danger of his life,[z] and Dr. MATHER was scarcely less an object of popular indignation. But the greater proportion of the Clergy of Boston embarked in support of the measure; they preached and wrote[a] in favour of it, until, at length, their influence, greatly confirmed by the success attending Dr. BOYLSTON's practice, gradually overcame the opposition; and near three hundred persons were soon after inoculated in Boston and the neighbouring towns.[b]

y Dr. DOUGLASS is said to have been a man of learning and talents. He published some small medical pieces, and corresponded with Dr. COLDEN, of New-York, who, in one of his medical communications, speaks of him in terms of high respect. He was, however, conceited and arrogant, and behaved with great disingenuousness in his opposition to BOYLSTON.

z Dr. BOYLSTON's house was attacked with so much violence, that he and his family did not consider themselves safe in it. He was assaulted in the streets, loaded with every species of abuse, and execrated as a murderer. Indeed, many sober, pious people were deliberately of opinion, when he commenced the practice of inoculation, that if any of his patients should die, he ought to be capitally punished. A bill was brought into the Legislature for prohibiting the practice, under severe penalties, and actually passed the House of Representatives; but some doubts existing in the Council, its progress was arrested, and it never became a law. See HUTCHINSON's *History of Massachusetts*, vol. ii. p. 247, &c.

a The *newspapers* teemed with pieces on both sides of this interesting controversy; and especially with some of a very virulent character, from the opponents of inoculation. The *Courant*, a newspaper edited at that time by a brother of Dr. BENJAMIN FRANKLIN, took a decided part with DOUGLASS and his coadjutors. The young philosopher was then an apprentice in the office, and employed his opening talents in favour of the same deluded party. *M. S. Letter of the Rev. Dr.* ELIOT *to the Author.*

b HUTCHINSON's *History of Massachusetts*, vol. ii.

A degree of the same prejudice and opposition, which raged with so much violence in Boston, continued to be manifested not only there, but also in many other places, for a considerable time afterwards. But the practice gradually gained ground, and became general in New-England; in a few years it was adopted in New-York and Philadelphia; and in the year 1738 had reached Charleston, in South-Carolina.

Till near the close of the century now under consideration, the inoculation of the small-pox continued more and more to prevail, and to become the settled habit of all that portion of society who were placed in easy circumstances, and possessed the better degrees of intelligence. The advantages, however, of this practice, notwithstanding all its benefits to the individuals who employed it, were supposed by many, on a general calculation of human life, to be extremely problematical. By carrying the disease more frequently and universally through cities and countries, it was found that the poorer classes of people, which constitute the great mass of every nation, were much oftener exposed to casual infection; and that, on the whole, the mortality of mankind from this disease was thereby much augmented.

But such doubts and difficulties as these arising in the mind of the philanthropist, and much of the importance of the inoculation of the small-pox, even to those who employed it, were removed by the discovery of the inoculation of the *Vaccine Disease*, in the year 1798. This may perhaps be justly considered as the most memorable improvement ever made in the practice of physic. By substituting a disease so much milder that it cannot fail of being universally preferred, and one which at the same time affords effectual security against the small-pox, the prospect is presented of speedily

exterminating the latter disease, and thereby closing a great outlet of human life.

To Dr. JENNER, of Great-Britain, the world is indebted for this incomparable discovery. For although there has existed, perhaps from time immemorial, some popular knowledge of the vaccine disease, and of the fact of its rendering the human system unsusceptible of the small-pox;[c] yet the practice of inoculating it successively from one person to another as a substitute for the small-pox, and the investigation of the principal circumstances which ought to regulate that inoculation, in order to confer upon it the greatest certainty and success, seem undoubtedly to have originated with that physician. Further investigations and discoveries have since been made, concerning the nature and the inoculation of this disease, by other physicians, particularly by Drs. PEARSON and WOODVILLE, and Mr. RING, of London.[d]

All preceding ages, and a considerable portion of the eighteenth century, abound in accounts of

c For a number of years before Dr. JENNER's discovery, it was known to many, physicians as well as others, that a disease existed among the cattle in Great-Britain, particularly in Gloucestershire, which it *was said*, among the common people, when communicated to the human subject, formed a defence against *Small-Pox*. Dr. BARRY tells us that this disease has been long known in Ireland, under the name of *Shinach*; he gives instances of persons who had passed through it *fifty years* ago; and mentions that one woman, *eighty years* of age, declares, that as long as she can remember, the opinion prevailed, that people who had the *Shinach*, or *Cow-Pox*, could not take the *Small-Pox*; and that many, at that early period, purposely exposed themselves to the former, to avoid taking the latter. Traces have also been found of some knowledge of this disease existing in other parts of Europe, among the lower classes of people, a number of years before the publication of Dr. JENNER. See BARRY on *Cow-Pox*.

d An institution in Great-Britain, for the purpose of preserving and communicating the *vaccine* infection, and particularly for inoculating the poor, has been formed since the publication of Dr. JENNER's discovery. For this the public are principally indebted to the enlightened and benevolent exertions of Dr. PEARSON, of London. A similar institution has been more recently formed in the city of New-York. The first person who inoculated with the vaccine virus, in the United States, was Dr. WATERHOUSE, Professor of the Theory and Practice of Physic in the University of Cambridge, Massachusetts.

the destructiveness of the *Scurvy* in ships on long voyages, in armies, particularly in garrisons, as well as in some regions of the high latitudes. Towards the close of the period under examination, that dreadful disease has been disarmed of all its violence, and seems now to be completely reduced under the dominion of the healing art. This revolution has been effected by procuring for persons in the situations above mentioned more comfortable shelter, cloathing and food. Fresh meats substituted for salted, and vegetables plentifully supplied, especially the vegetable acids, may be considered among the principal means of prevention and cure. The *citric acid*, in particular, has accomplished wonders in this disease; and the late discovery of crystallizing it renders the remedy conveniently portable to any distance, and capable of preservation in all climates and seasons, and for any length of time. The eminent services of Dr. LIND in improving our knowledge of this disease can never be forgotten. The philosophic and enterprising Captain COOK was the first who reduced the improvements in nautical medicine to practice, in all their extent, and with complete success.[e]

Pestilential diseases are supposed to have greatly abated in frequency and malignity in the course of the eighteenth century. This observation, how-

[e] In the first voyage for the establishment of the East-India Company, out of four hundred and eighty men one hundred and five died of *scurvy* before they reached the Cape of Good Hope. Lord ANSON, in his voyage round the world, lost, from the same disorder, four-fifths of his original number. Those who have read the narrative of his expedition, by ROBINS, will recollect the dreadful picture which is drawn of the ravages of this disease, in the vessels under his command. Captain COOK, thirty years after ANSON, with a company of one hundred and eighteen men, performed a voyage of three years and eighteen days, throughout all the climates, from 52 deg. north, to 72 deg. south, with the loss of only one man, who had been previously indisposed. See Dr. RAMSAY'S learned and interesting *Review of the Improvements, Progress and State of Medicine in the Eighteenth Century*, &c. p. 28 and 30.

ever, must be understood to be chiefly restricted to those parts of the world which, during that period, have been making progress in civilization, intelligence and refinement. In many parts of Asia and Africa, and in European Turkey, it is probable that little abatement of the ravages of such diseases has actually taken place. The degraded state of man in most of the Mahometan countries; the poverty, filth and wretchedness which oppress the lower classes of people in their crowded cities, and the inattention to cleanliness and ventilation, even in the houses of the most opulent, aided by the influence of their doctrine of fatalism, seem to leave them little prospect of emerging from their present condition into one more respectable, and exempt from malignant diseases. The contrast of health and disease, in the Christian and Mahometan world, while it affords to the pious mind a satisfactory confirmation of his faith, furnishes also, to the philosopher and physician, an instructive lesson, with regard to the comparative influence of the respective principles and institutions of Christianity and Mahometanism.

The comparative mildness and infrequency of pestilential diseases in Christian Europe, during the late century, are probably owing to a combination of many causes. Much may be safely ascribed to improvements in the cleanliness and ventilation of houses, in diet, in apparel, in habits, customs, and all the modes of life. Cities, which are usually the great nurseries of pestilence, are now less crowded than in former ages. The comforts, decencies, and elegances of life, from a variety of causes, are now enjoyed by a greater portion of the community, and in a much higher degree than in preceding times. To the same causes, also, may be ascribed the almost entire banish-

ment of that loathsome disease the *Leprosy*, from the civilized world, which has been in a great measure effected in the course of the last age.

The frequent and mortal prevalence of the pestilential disease called *Yellow Fever*, in the cities, and in some parts of the country, in the United States, for the last ten years, forms a memorable event in the medical history of this country, during the century which is the subject of this retrospect. The malignity and ravages of this epidemic impressed the public mind with the deepest apprehensions, and undoubtedly gave a new impulse and vigour to medical investigation. The origin of this disease has been warmly contested in the United States, in the West-Indies, and in Europe. While many maintain that it is produced by the exhalations of putrefaction, whether such putrefaction be found in the filth of cities, of marshy grounds, or of vessels on the water; others, on the contrary, assert, that it is always produced by contagion emitted from the sick labouring under the disease, and successively propagated from one person to another. The latter opinion seems to be fast losing ground among the better informed part of the medical profession, and of the public; while the evidence in support of the former is accumulated, and rendered more luminous and irresistible, by the occurrences of every epidemic season. Much light has been thrown on the origin, course, precursors, and concomitant circumstances of this, and of other pestilential diseases, by Mr. Noah Webster, in his *History of Epidemics*, an ingenious and learned work, in which a rich and curious amount of information on this subject is brought together and exhibited in a very impressive manner. Though the author is no physician, he has made a most valuable present to the medical world, and has entered and pursued with much

ability a path of inquiry, which will probably conduct to very interesting and instructive conclusions. In the mean time, the modes of treating yellow fever have received great improvement, during the period under consideration. Those who have written on this disease with most reputation, are Dr. RUSH, of the United States, who has had ample experience in the treatment of it,[f] and Drs. JACKSON and CHISHOLM, of Great-Britain.

The diseases of *Camps*, *Armies*, and *Military Hospitals* have attracted much attention, and the treatment of them received great improvements in the course of the late century. The means of preventing diseases, in such situations, are much more attended to than formerly; particularly all circumstances which respect the sites of encampments, the shelter, cloathing, food, cleanliness, &c. of troops, and the ventilation of the places in which they are stationed. For many of these improvements the public are indebted to Sir JOHN PRINGLE, Drs. DONALD MONRO, BROCKLESBY, HUNTER, and others, who have written on the diseases of armies. The means of preventing and curing the diseases incident to *Seamen* have also been more diligently and successfully studied in the course of the last age than ever before. For very enlightened inquiries and useful publications on this subject we owe much to Drs. LIND, MACBRIDE, CLARKE, BLANE and TROTTER.

f The intrepidity and benevolence displayed by Dr. RUSH, during the several seasons in which pestilence has prevailed in Philadelphia, deserve the highest eulogium. This remark applies with peculiar force to the season of 1793, when the yellow fever appeared in that city, arrayed in greater terror than ever before or since, in any part of the United States; when the methods of treatment were comparatively little understood; when it was universally considered as an highly contagious disease; and when the fortitude and services of this distinguished physician, through the whole course of the epidemic, were pre-eminently conspicuous. If the admirers of moral heroism celebrate, as they justly do, the conduct of the good *Bishop of Marseilles*, and of the benevolent *Lord Mayor of London*, it is conceived that the firmness and useful exertions of Dr. RUSH, in similar circumstances, are, in no respect, less worthy of their commemoration and praise.

Modern times have also given rise to improved modes of preserving the health, and promoting the comfort of persons confined in *Prisons*, and other close apartments. The honour due to the Rev. Dr. HALES, and Sir JOHN PRINGLE, for their philosophic inquiries, and enterprising exertions to forward this branch of improvement, are generally known. But to no individual that ever lived is the cause of humanity more indebted for services of this kind, than to the immortal HOWARD, whose long and painful journies, persevering labours, and successful plans for meliorating the condition of *Prisoners*, in every part of the world, to which he could obtain access, will ever form one of the most honourable pages in the annals of human nature.[g]

The diseases of *Warm Climates* are become better understood, by the efforts of modern times to extend the range of geographical and commercial enterprise; and, from their bold and definite features, much light has been thrown on the theory and treatment of such as prevail in more *temperate* regions. In fact, the whole of that important and interesting field of inquiry which relates to the comparative frequency and force of particular diseases, as they appear in different regions of the earth, and in different states of society, had been but little explored prior to the period which we are now considering.

The exertions recently made to investigate the nature and causes, and to lessen the fatality of *Pulmonary Consumption*, deserve a transient notice.

g In JOHN HOWARD the eighteenth century may boast of having produced an UNIQUE IN THE HISTORY OF MAN. It would be unjust to compare him with any hero of benevolence, merely human, before or since his time, for such an one never existed. It has been truly said, that his plan for promoting the happiness of his fellow creatures was *original*; and that it was as full of *genius* as of *humanity*. That it was the RELIGION OF CHRIST which directed and animated the exertions of this wonderful man, no one can doubt who is acquainted with his history and character.

If such exertions have not yet produced all the good consequences which humanity could wish, there is yet ground to believe they have effected some good, and that no effort in such a cause will be finally lost. Justice requires, whenever this subject is mentioned, that the philanthropic labours of RUSH and BEDDOES should be duly appreciated. Similar exertions have also been made, and with like considerable success, to throw light on the nature and cure of *Scrophula*, and the *Diseases of the Mind*, to say nothing of many others equally worthy of notice.

Under this head it is proper to take some notice of the successful attempts which have been made, during the eighteenth century, to enable the *Deaf* and *Dumb* to *speak*. Deafness has, in all ages, been considered such a total obstruction to speech, and the knowledge of written language, that the attempt to teach those who are destitute of the sense of hearing, either to speak or read, has been generally regarded as vain. This continued to be the case till after the middle of the century under review. Dr. JOHN WALLIS, towards the close of the preceding age, had, indeed, suggested in his *Grammatica Linguæ Anglicanæ*, a plan for conveying ideas to the minds of the deaf, more distinctly than by ordinary signs. His attempt was succeeded by those of his countrymen BAKER and HOLDER, each of whom devised a plan, and made some progress in its execution. To these may be added some other attempts, attended with partial success, by HELMONT, an ingenious German, and AMMAN, a Swiss physician. There was, however, little done to any valuable purpose, till the year 1764, when Mr. THOMAS BRAIDWOOD, of Edinburgh, undertook the difficult task. In that year he began with a single pupil, when, his exertions being attended with complete success, he was

encouraged to extend his views, and afterwards taught a considerable number to speak distinctly, to read and write, and to understand arithmetic, and the principles of morality and religion. The same curious and highly interesting art has also been practised, on a different plan, but with great success, by M. HEINECKE, of Leipsic; and by Father VANIER, M. PERRIERE, and the Abbé L'EPEE, of Paris. The last named gentleman has been more successful than any other. He had instructed upwards of *one thousand* deaf and dumb persons, before he was succeeded by his pupil M. SICARD. A regular institution for this kind of instruction was established in London, in 1792, under the care of Mr. WATSON, a pupil of Mr. BRAIDWOOD.

The late century has likewise made great progress in ascertaining the means of *restoring the suspended actions of life*. *Humane Societies*, for the recovery of drowned persons, which began to be instituted soon after the middle of the century, have since been multiplied to such extent, that they are to be found in most great sea-port towns. Great exertions have been made to improve the knowledge formerly possessed on this subject; and the means now employed are much more rational and successful than the rude and often pernicious ones which used to be resorted to. Many efforts have likewise been made to prevent the premature interment of such as are only apparently dead; by which some valuable lives have been saved, and more caution relative to this point impressed on the community. The service rendered by many physicians to the cause of humanity, by promoting objects of this kind, deserves honourable commemoration. Of these perhaps few are entitled to a larger tribute of acknowledgment than Drs. HAWES and LETTSOM, of London.

It would be easy to descend to a great variety of particulars, in which the means of curing, or mitigating diseases, have been radically improved, during the period under consideration; but the limits of this retrospect forbid such details. It is sufficient to remark, that a large portion of diseases, however faithfully observed by preceding, and even by the most ancient physicians, have, within this period, been better understood, arranged, and discriminated than ever before; and that remedies of superior efficacy have been selected, their qualities, virtues, and uses more fully ascertained, and the best mode of their application rendered more definite and precise. The number of incurable diseases, also, has been diminished, and the treatment of many hazardous and violent ones so far improved as greatly to diminish their force and danger. The recent doctrines of *Association* and *Sympathy* in morbid action, and the interesting practical doctrine which results from them, of the *transfer of morbid action* from vital parts to such as are less essential to life, have unfolded a vast extent of medical exertion and usefulness, which was nearly unknown to the physicians of former centuries.

The *practical writers* on medicine, during the eighteenth century, were very numerous and respectable. From so large a catalogue it is difficult to select the few names of which the brevity of this review will allow the insertion. Besides a considerable number of those mentioned in the foregoing pages, WINTRINGHAM and HUXHAM, on epidemical diseases, deserve a high place; CLEGHORN, on the diseases of Minorca; HILLARY, WHYTT, FOTHERGILL,[b] HEBERDEN, LIND, JACK-

[b] Dr. FOTHERGILL died in 1780, in the 68th year of his age. Distinguished as he was for his learning, the solidity of his talents, and the extent and success of his medical practice; he was rendered still more con-

son, Fordyce and Chisholm do honour to the British nation. Among the French Senac and Lieutaud, and among the Germans Storck and De Haen hold the first rank; to say nothing of many others, in almost every cultivated part of Europe, who have obtained much distinction by their practical writings on medicine.

SURGERY AND OBSTETRICKS.

That department of medicine which treats of diseases to be cured or alleviated by the hand, by instruments, or by external applications, is denominated Surgery. At the close of the seventeenth century this art had considerably emerged from the low state in which all preceding ages had left it. Many respectable writers had appeared in the course of that century, whose exertions to improve the practice of surgery, and to diffuse the knowledge of such improvements, were attended with so much success as to render the progress of it comparatively rapid at the commencement of the eighteenth century.

It will be easy to perceive that the numerous improvements in other branches of medicine, which are detailed in the preceding parts of this chapter, must have greatly advanced the progress of surgery. Every step in the cultivation of anatomy and the theory and practice of physic confers some advantage on medical or operative surgery.

spicuous by the purity of his moral and religious character, and the ardour of his philanthropy. His great influence was continually exerted for the increase of human happiness. Of every institution within his reach, which had for its object the advancement of useful knowledge, or the interests of humanity, he was a zealous and active promoter. Of public and private charity he was an illustrious example; and we are informed, that a large number of those improvements which have so much contributed to the health of the city of London, either originated from his counsels, or were effected, in a great measure, by his influence.

The improved state of the mechanic arts has likewise served to divest it of much of that useless machinery with which it was formerly encumbered, to retain only what appears to rest on the basis of experience, and to aid ingenuity in supplying many important deficiencies. Hence, the surgery of the eighteenth century may not only boast a more intimate acquaintance with the structure and functions of the human body, and with the fundamental principles of diseases, but likewise a superior simplicity, neatness, ease and expedition in the performance of operations.

Early in the century which forms the subject of this retrospect, LAURENCE HEISTER, Professor of Surgery in the University of Helmstadt, published his system of surgery, which continued till about fifteen years ago to be the only tolerably complete system in possession of the public. This work comprised whatever the experience of former times had approved as useful, and such observations and precepts as the knowledge and experience of the learned author himself enabled him to add. Some other systematic arrangements of chirurgical knowledge were, indeed, attempted about the middle of the century. PLATNER, Professor of Surgery at Leipsic, published his institutes of surgery in the year 1745; and LUDWIG, of the same University, favoured the world with a similar publication in 1767. But both these works, though possessed of great merit, are too compendious to give a clear and distinct account of the numerous topics of which they treat.

In Great-Britain, Mr. CHESELDEN was much distinguished by his chirurgical eminence in the early part of the century. He improved the lateral operation of *Lithotomy*, and devoted much attention to the diseases of the *Eyes*. His pupil, Mr. SAMUEL SHARPE, obtained soon afterwards a high

reputation. His *Treatise on the Operations of Surgery*, and his *Critical Inquiry*, were deservedly considered as performances of great value at that period. The elder MONRO, of the University of Edinburgh, deserves also to be mentioned among those who did much to improve the practice of surgery about that time. Towards the middle of the century Dr. WILLIAM HUNTER, of London, began to acquire great celebrity as an anatomist and surgeon, and was joined not long afterwards by his brother, Mr. JOHN HUNTER, who, as an operator, was still more distinguished. To the exertions of these eminent men the art is indebted for many valuable improvements, both in theory and practice. After the middle of the century Mr. PERCIVALL POTT began to take a high station among British surgeons, added greatly to the progress of the art, and published many excellent writings, which are still in the highest esteem. The present Professor MONRO, of Edinburgh, has enriched surgery by many important additions to the preceding stock of knowledge, which greatly increase the lustre of his reputation. Late in the century, about the year 1788, Mr. BENJAMIN BELL, of Edinburgh, completed his *System of Surgery*, which was compiled with much learning and diligence, and exhibited an advantageous view of the progress and improvements in surgery up to that period.

The particular improvements in surgery during the late century are extremely important, and reflect great credit on the ingenuity and labours of those by whom they were made; but they are likewise so numerous that only a few of them can be mentioned consistently with the necessary brevity of this retrospect.

The means of putting á stop to *Hæmorrhagies*, from the division of the larger blood-vessels, have

been much improved during the period under consideration. The first notices of the instrument for this purpose, called the *Tourniquet*, originated in the seventeenth century. It is amazing that so simple an instrument, and so obvious a means of compressing arteries, should have remained unknown till that period. Surgery must have been in a deplorable state of rudeness and imbecility when no operation of importance could be undertaken on any of the extremities but with the greatest danger of bleeding to death, and large wounds, otherwise in no degree hazardous, must often have proved mortal for the want of this simple contrivance. The first attempts to construct it were very rude and imperfect; and it was reserved for Mons. PETIT, of Paris, by adding the screw, to render it much more convenient and powerful in the compression of arteries. Another interesting improvement in securing arteries belongs to the late century. Instead of the *needle* and *ligature*, which were formerly used for this purpose after operations, the *tenaculum*, or *forceps*, is now employed, which produces much less pain, and prevents many ill consequences of the old method. The first application of the needle and ligature to surgical purposes, which is ascribed to AMBROSE PAREY, of the sixteenth century, was a great improvement. Since that time many variations have taken place in the mode of using them; and in the course of the eighteenth century, the different kinds of *Sutures* have been still further improved in many important respects.

The treatment of diseases of the *Head* from external violence has been extremely improved within the period of this retrospect. For this interesting part of the progress of surgery the world is much indebted to M. LE DRAN, Mr. POTT, Mr. BROMFIELD, and others.

The various species of *Herniæ* are much better understood within the last fifty years; and much of the progress in this branch of surgery is due to the acuteness and indefatigable labours of the late Mr. Pott. The disease termed *Hydrocele* has also, within the same period, been investigated with much more success than ever before; for this much is to be ascribed to Mr. Pott, Mr. Benjamin Bell, and Sir James Earle.

The interesting subject of *Aneurisms* has derived great additional light from the researches of modern anatomists and surgeons. Dr. William Hunter examined the phenomena of this disease with great diligence and success. The present treatment of the *popliteal aneurism*, which forms a memorable improvement in surgery, is to be ascribed to Mr. John Hunter.

The lateral operation of *Lithotomy*, which is now generally preferred, owes much of its present improved state to the labours of the surgeons of the late century. Mr. Cheselden did a great deal to improve it in the first half of the century; and, since his time, much has been done by Pott, Bromfield, Gooch, Sir James Earle, and many others. The *Gorget*, which is so important among the several instruments employed in this operation, was the invention of Mr. Hawkins, of London.

In the management of *Fractures* and *Luxations* much advantage has been obtained, within the last fifty years, by avoiding the constrained and unnatural positions formerly imposed in such cases, and generally placing the affected limbs in that easy, relaxed and bent position which the natural inclination of the patient prompts him to assume. By this means much pain is spared, and the straightness and perfect recovery of the affected limbs exceedingly promoted. The efforts of Mr. Pott in

effecting this salutary reform deserve very honourable mention.

The treatment of *Gunshot Wounds* is another point on which the surgery of the eighteenth century claims a great deal of improvement. This has been chiefly effected by giving up the artificial and over-officious management of former times, by admitting the operation of general principles, instead of considering them as poisoned wounds, and by adopting the light, easy and superficial dressings which experience has been found to approve.

Much light, during the late century, has been thrown on the various diseases of the *Eyes*, and particularly on the *Cataract*. The same may be observed of *Fistula Lachrymalis*, and of *Fistula in Ano*. Among many others, Mr. Pott has largely contributed to the elucidation of all these subjects, and to the banishment of many prejudices and errors concerning them, which fifty years ago existed in great force. To the same distinguished practitioner surgery is indebted for a mode of treating *Curvatures of the Spine*, far more successful than any previously known.

Lately Mr. Abernethy, of London, has suggested a mode of treating *Lumbar Abscess*, which sometimes succeeds very happily, and often affords reasonable grounds of hope in that deplorable disease. And not long since, the theory and management of *Ulcers* has been greatly improved by the persevering labours of many surgeons, among whom it would be unjust not to mention Mr. Benjamin Bell, Mr. Home, Mr. Baynton, Mr. Whateley, and Mr. Nayler. The subject of *Wounds* has recently been treated with great ability and discernment by Mr. John Bell, of Edinburgh, who deservedly sustains a high rank among the surgeons of the Scottish metropolis.

But the greatest of all improvements in surgery which the eighteenth century can boast, consists in the maxim of *Saving Skin* in all operations, and in the universal doctrine and practice of *Adhesion*, as now received. This improvement is so simple and so important that it is wonderful to find it reserved for the surgeons of so late a period. The merit of this discovery does not seem to belong exclusively to any individual. A share of it doubtless attaches to Mr. ALANSON, of Liverpool, in Great-Britain, and several others who directed their inquiries to this object about the same time. But to Mr. JOHN HUNTER more is certainly due than to any other person. This improvement was first applied to *amputation*, then to the operation of the *trepan*, next to the extirpation of schirrous mammæ, afterwards to all the great operations, and, lastly, to all recent wounds. In short, it would not be too much to assert, that this doctrine and practice of *adhesion* has done more to promote the progress of surgery, within a few years, than any discovery of modern times, not excepting, perhaps, even that of the circulation of the blood.

It remains to offer a few remarks concerning the progress of *Obstetricks* in the late century. By this term it is usual now to understand not only the art of facilitating the birth of children, but that of managing pregnant and puerperal women. During the period of our retrospect, the improvements which this art has received may justly be considered as numerous and important, and fully equal to those which are claimed in the other departments of medicine.

Both the theory and practice of obstetricks have assumed a much more regular and scientific form within the period in question. The anatomical structure of the body, so far as it concerns this art, was well understood in former ages. But the in-

tricate and interesting relations of one part to another, their distances and their inclinations, both with respect to each other, and to different parts of the body, as well as with regard to the fœtus, form a branch of inquiry on this subject which has been prosecuted to advantage only in modern times. Dr. SMELLIE, of Great-Britain, is supposed to deserve the praise of beginning this improvement and pursuing it to considerable extent."

By the light of the eighteenth century, not only many new truths have been brought into view, but a multitude of errors, prejudices and superstitious opinions, which formerly misled the obstetrical art, have been in a great measure banished." Nature has resumed its dominion, and is now followed as the safest guide. Much of the officious and violent interposition of former practitioners, to hasten or controul the natural process of parturition, has been found to be injurious, and is now generally relinquished. The modern instruments, in comparison of those employed by the ancients, are few in number, simple in construction, and seldom resorted to.

The diseases of the puerperal state have been much better understood, discriminated and treated within a few years, than in preceding times. The late publications of Dr. SMELLIE, Dr. MANNING, Dr. HULME, Dr. LEAK, Mr. WHITE, Mr. MOSS, Dr. HAMILTON, Dr. DENMAN, Dr. OSBORN, M.

m Dr. SMELLIE is said to have been the first writer who considered the shape and size of the female pelvis, as adapted to the head of the fœtus; and to have abolished many superstitious notions, and erroneous customs, that prevailed in the management of women in labour, and of children; and to have had the satisfaction to see the most of his maxims adopted in the greater part of Europe. RAMSAY'S *Review*, p. 13.

n VAN SWIETEN quotes several authors of reputation, who had advised lying-in women to keep their beds till the tenth or twelfth day after parturition; and this was frequently done without changing their bed-linen. The children were also incased from head to foot, so as to be totally deprived of the use of their limbs. These absurd and unnatural practices have, within the last half century, been gradually exploded. *Ibid.*

BAUDELOCQUE, and many others, whose names are only excluded by the brevity of our plan, have thrown much light on the subject of obstetricks, and do great credit to their profession. The elegant plates of Dr. WILLIAM HUNTER, before mentioned, may also be considered as a great acquisition to the theory and practice of this art.

MATERIA MEDICA.

The knowledge of the nomenclature, the methodical arrangement, and especially of the virtues of those substances which are employed either for nutriment or the cure of diseases, must be considered as forming a very important branch of medicine. Accordingly it has received much of the attention of physicians in all ages. But in no period of equal length have inquiries on this subject been pursued with so much accuracy and success, or the discoveries and improvements been so numerous, as during the century under review. Many new articles, in this period, have been added to the former catalogues; the properties of articles formerly known and employed have become better understood than before; the application of old remedies greatly extended; and the whole subject made to wear a more scientific aspect.

From the account which has been already given of the state of the other branches of medicine, at the close of the seventeenth century, the reader will readily perceive that materia medica, so closely connected with them, in its principles and application, must have been, at the same period, in a corresponding situation; perhaps it may even be said to have been less cultivated at that time than any other branch of medical science. But soon after the commencement of the eighteenth

century the views of medical philosophers began to be much more correct and enlarged on this, as well as many other subjects belonging to the healing art. About this time the *cardinal qualities*, and other jargon of the Galenists; the *distilled waters*, *essences*, *quintessences* and *extracts* of the chemists; and many of the wild opinions respecting the application and efficacy of remedies, which resulted from mathematical and mechanical doctrines, began to decline; while new light, from various quarters, directed to more rational methods of experimenting and philosophizing on the subject.

The improvements which were made in the science of *Botany*, in the course of the last age, proved the source of many important additions to the materia medica. New plants of great medicinal value were brought from every part of the globe. Vegetables were examined, and their properties ascertained by means of more numerous, patient and enlightened experiments than preceding naturalists had attempted. The service rendered, particularly to this branch of the materia medica, by CHOMEL and GEOFFROY, of France; by VOGEL, of Germany; by LINNÆUS, and his pupil BERGIUS, of Sweden; and by ALSTON, WITHERING, WOODVILLE, and others, of Great-Britain, are generally known. All these writers have treated of plants, with a special reference to their medical uses, and the greater number of them have delivered formal systems. But besides what was effected by their inquiries, our knowledge of the subject has perhaps been still more increased by many of the other illustrious botanists mentioned in the preceding chapter. For while these latter have laboured to distinguish plants from one another, and to present them in a convenient method, few of them have failed to pay some attention to their

medicinal virtues, and in many instances to make very interesting experiments of their effects on the human body.

The improvements in *Mineralogy*, during the period under review, have also furnished many new articles, and extended our knowledge of others in the materia medica. The eminent services rendered to medicine in this way, by SCHEELE, BERGMAN, KLAPROTH, VAUQUELIN, and a large number of other distinguished mineralogists, are so generally known, that it is unnecessary to enlarge on the subject.

While the progress of natural history has contributed greatly to the enlargement and correction of the materia medica, the discoveries and improvements in *Chemistry* have served still more eminently to promote the same end. When the employment of chemical remedies first became an object of much attention, in the hands of PARACELSUS and his followers, it was attended with so much error, and embraced so many visionary and absurd opinions, as rather to corrupt and degrade medical science, than illustrate its principles, or guide their application. And, indeed, till the close of the seventeenth century, the doctrines of the chemist, when applied to medicine, served little other purpose than to amuse and mislead. But modern chemistry, in every respect a more just, rational, and dignified science than what had been called by that name in the preceding age, has opened resources for the materia medica of incalculable value; and is daily furnishing the enlightened physician with some of the most efficacious means of preserving health and combating disease.

The chemical inquiries of the eighteenth century have brought to light many new medicines, some of which hold the first rank for convenience, cheap-

ness, and efficacy. From the same source physicians have learned to reject many inert and useless substances which formerly held a place in the materia medica. They have been taught, also, by chemistry, greater accuracy in forming their preparations, more easy, efficacious, and correct methods of exhibiting different substances, and more definite rules for adapting remedies to diseases. To enumerate those who have distinguished themselves by contributing to the improvement of the materia medica, through the medium of chemical investigations, would be to repeat the long catalogue of great chemists before given, whose names do so much honour to the last age.

Several systematic writers on the materia medica have been already mentioned. To these might be added a much greater number, who have written learnedly and extensively on the subject, did not the limits of this review forbid such an enumeration. It would be improper, however, not to take some notice of what has been done in this department of medical philosophy by LIEUTAUD, FERREIN, and especially by VENEL, of France; by CARTHEUSER, SPIELMAN, and MURRAY, of Germany; and by HILL, LEWIS, ALSTON, CULLEN, and DARWIN, of Great-Britain. Of these the work of Dr. LEWIS, improved by Dr. AIKEN; that of Professor CULLEN; and particularly the *Apparatus Medicaminum* of Professor MURRAY, of Goëttingen (the most extensive, learned, and complete of all), are entitled to the largest share of esteem.

The late work of Professor BARTON, on the materia medica of the United States,[o] forms a

[o] *Collections for an Essay towards a Materia Medica of the United States*, 8vo. 1798. Under this modest title, Dr. BARTON has presented a body of information, and discovered an accuracy and extent of learning, which might, without impropriety, have made higher claims. It is pleasing to observe that this work is so favourably received by the author's countrymen, that a *second edition* was lately demanded, into which he has introduced considerable additions and improvements.

very valuable addition to the knowledge before possessed on this subject, and reflects high honour on its learned author. From the extent of information, the vigour of mind, and the ardent zeal by which this American naturalist and physician is distinguished, we may hope for further investigations, and richer discoveries of the medical treasures of our country.

Though it is impossible to enumerate all, or even the greater part of the new articles with which the materia medica has been enriched, in modern times, it may not be improper to take some notice of a few of the most celebrated and useful.

The first application of *Electricity* to medical purposes belongs exclusively to the eighteenth century. It was before observed that Mr. KRATZENSTEIN, of Germany, was the first person who applied the electric fluid to the cure of diseases, and that the course of experiment and inquiry on this subject was further pursued by the Abbé NOLLET, and by many others, at later periods. After correcting numerous errors arising from the extravagant calculations of the first experimenters on medical electricity, there remains no doubt of its efficacy in many diseases of nervous derangement and muscular debility; so that it is now fully established as an article of the materia medica.

Within a few years past, an agent, which is probably nearly allied to electricity, and which is denominated *Galvanism*, or the *Galvanic Fluid*, has become a popular application in certain diseases. The original discovery, together with the progress and gradual extension of this branch of philosophy, was mentioned in a former chapter. That this wonderful agent possesses great efficacy in many cases similar to those in which electricity is found to afford relief, seems to be too well attested to admit of doubt; but the extent of its application,

the rules which ought to regulate it, and the degree and permanency of relief which it is capable of affording, have been so imperfectly investigated, that it is difficult to speak with precision or certainty on the subject.

The introduction of *Factitious Airs* into the materia medica may be considered as marking a splendid and very interesting period in its history. Some facts on this subject were stated in a preceding section, to which it will only be added, that though our knowledge of this important class of remedies is yet in its infancy, there are probably few sources from which more important aid to the physician may be expected to be hereafter derived.

The affusion of *Water*, cold and warm, on the body, in fevers and other diseases, deserves to be mentioned in this place as a new article in the materia medica, at least with respect to the principles and manner of its application. The simplicity, pleasantness, universal readiness of access, and unquestionable efficacy of this remedy, will, it is to be hoped, soon recommend it to general use. The honour due to Dr. CURRIE, of Liverpool, for his enlightened experiments, and valuable publication on this subject, was before noticed.

The efficacy and uses of *Peruvian Bark* have been better understood, within the last century, than in any former period. Its free and successful exhibition by modern physicians, in *intermittent fevers*, in *scrophula*, in cases of *gangrene* and *mortification*, and in numerous diseases of *relaxation* and *debility*, is well known. To the exertions of Sir HANS SLOANE and others, in introducing this medicine into general use in Great-Britain, much honour is due.

The use of *Mercury* has also been greatly extended, and its effects more accurately observed, during the century under review. The introduc-

tion of this metal as a remedy in a multitude of diseases,[p] and especially in malignant fevers, may be considered as a memorable event in the annals of medicine. Those who have most distinguished themselves by recommending the use of mercurial preparations in the latter class of diseases, are Drs. RUSH and CHISHOLM.

The great extension of the use of *Opium* in the eighteenth century deserves particular notice; but the principles of this extension, and the variety of cases in which it has been lately employed, are too numerous to be detailed.

Digitalis has long held a place in the materia medica; but its efficacy in certain diseases, particularly in *dropsy* and *pulmonary consumption*, has been clearly known but a few years. For much information respecting the virtues of this powerful vegetable, we are indebted to the publications of Drs. WITHERING, BEDDOES, and others.

The use of *Lead*, particularly in various external applications, has been better understood, and more frequently employed, within the last half century, than before. Those who have been most distinguished by their inquiries into the medical virtues of this substance are M. GOULARD, of France, and Dr. AIKEN, of Great-Britain.

Many of the best preparations of *Antimony* now employed by physicians, were either wholly unknown, or little used, prior to the eighteenth century. The important station they now hold in medical prescriptions is well understood.

Several of the mineral and vegetable *Poisons* have been either first introduced into the materia

[p] The use of *Mercury* in the *Small-Pox* was resorted to, in the American Colonies, first in 1745, when it was employed with success, by Dr. THOMAS, a respectable practitioner of Virginia, and by Dr. MUIRSON, an eminent physician of Long-Island, in the province of New-York. See Dr. GALE's *Dissertation on Small-Pox*, quoted by Dr. HUXHAM.

medica, or used with unprecedented freedom in the course of the period under review. As a specimen of these it may be proper to mention *Arsenic, Conium Maculatum, Atropa Belladona, Solanum Dulcamara, Hyoscyamus*, and *Datura Stramonium*, which, with several others, have been often and usefully applied by modern physicians.

The introduction into medical use of the *Carolina Pink-Root (Spigelia Marylandica)*, by Dr. GARDEN, of South-Carolina; of the *Seneka Snake-Root (Polygala Seneka)*, by Dr. TENNANT, of Virginia; of *Gum Kino*, by Dr. FOTHERGILL; of *Cuprum Ammoniacum*, and of many new *Acids*, by various persons, may also be ranked among the less important of the class of improvements now under consideration.

Finally, it would be difficult to mention a single important article in the materia medica which, in the hands of the physicians of the eighteenth century, has not been better understood, better prepared, more extensively applied, or rendered more convenient and efficacious in its combinations, than in preceding times. Were it possible to include in this brief review a further detail of particulars, it would be easy to mention many great names, and various branches of science, to which the materia medica has been laid under great obligations in the course of this active and eventful period.

To the foregoing review it may not be improper to add, that the eighteenth century is distinguished above all preceding ages, by the number and excellence of *Medical Schools*. These have multiplied greatly, have been placed on a more extensive and liberal footing, and been more frequented than in any former period. At the be-

ginning of the century under review, and indeed during the former half of it, the University of Leyden was by far the most celebrated place of medical instruction. Next to this, in respectability, stood the schools of Italy. Soon afterwards the great school of Edinburgh began to be formed. In 1719, the first MONRO, of that city, undertook to deliver lectures on anatomy. He was in a short time joined by other able teachers, who formed a regular plan of medical instruction, and gained, in a few years, a high reputation. Indeed, for more than forty years the school at Edinburgh held the first rank, and was resorted to more than any other by students from all parts of the world. During the last twelve or fifteen years, that celebrated institution may, perhaps, be said to have, in some degree, declined; or rather to be more successfully rivalled than before, by several establishments for medical instruction, especially by some on the continent of Europe. The German medical schools, in particular, have lately much increased, both in number and excellence.

Medical Associations, for promoting the intercourse, combining the efforts, and diffusing the concentrated knowledge of many physicians, though not the exclusive product of the eighteenth century; yet, when considered with respect to their number and usefulness, may be ranked among the distinguishing honours of the period under consideration. They have been greatly multiplied during this period, in every civilized part of the world; have made many important publications, and eminently contributed to the advancement of the healing art. To recount the number of these established within the last hundred years, or to make the most general estimate of the services which they have rendered to the science of medicine, would fill many pages.

Next in importance to *Medical Schools* and *Societies*, are the *Medical Journals*, and other periodical publications, intended to promote the science of medicine, which distinguished the last age. It is believed that the honour of giving birth to this species of publication belongs to the century under review. At an early period of it, the *Transactions* of medical societies, and the collections of *Observations* and *Inquiries* on the various branches of the healing art, began to make their appearance, and to awaken the minds of practitioners. Among the regular *Journals* in the English language, exclusively devoted to this department of knowledge, the *Medical Commentaries* of Dr. DUNCAN, of Edinburgh, hold the first place, both with respect to time and merit. This work was succeeded by the *Annals of Medicine*, by the same gentleman, assisted by his son. Within the few last years of the century, works of this kind have greatly multiplied, not only in Great-Britain, but also in many other parts of the learned world. The great utility of these publications is unquestionable. The number of important hints which they have proposed, of new remedies which they have suggested, and of new paths of inquiry which they have opened, is too great to be reckoned. "It "is no exaggeration," says a learned American physician, "to assert, that the medical facts and "observations which have been published in the "eighteenth century, have done more towards ex- "plaining the functions, and curing the diseases "of the human body, than all that remained on "record, for many, perhaps for all the centuries "that had preceded since the creation."[q]

The establishment of numerous and extensive *Hospitals*, by which the eighteenth century is emi-

q RAMSAY'S *Review of the Improvements of Medicine*, &c. p. 16, 17.

nently distinguished, may be considered as scarcely more favourable to the interests of humanity, than to the advancement of medical science. It has been well observed, that the *Heathen World never produced an Hospital;* and if any institutions of this kind now exist among pagans, they have derived from Christendom the benevolent plan. The astonishing multiplication of such establishments, in almost every part of the Christian world, and especially in Great-Britain, during the last century, is well known to every intelligent reader; and that every institution of this kind may be considered as a sort of medical school, from which the richest stores of instruction, both in surgery and the practice of physic, are continually drawn, is too obvious to require explanation.

To the peculiarities of the eighteenth century already stated, it may be added, that every branch of knowledge connected with the healing art has been rendered more *accessible* and *popular*, by the exertions of philanthropic and liberal minded physicians. For a number of preceding ages medical science was hidden under the veil of dead languages, and obscured by the technical jargon, and the love of mystery which long distinguished medical practitioners; but in the course of the century under consideration, and especially the latter half of it, the love of mystery, though not completely vanquished, has much declined. The elements of medical knowledge have been brought down to the capacities of all classes in the community. Plain and popular works for the use of *Families* have been presented to the public, and much useful knowledge respecting the best means, in ordinary cases, of preserving and restoring health, for the first time, generally disseminated. Among the many popular works of this kind, which might be mentioned, those of Tissot, Buchan, Willich,

and PARKINSON, have successively appeared, and acquired much distinction.

The different modes of making impressions on the human system, in various states of disease, through the medium of the imagination, and all the endless impositions of *Quackery* and *Charlatanism*, have been astonishingly multiplied in the course of the eighteenth century. Though medical knowledge has been evidently increasing, throughout this period, medical imposture has, at least, kept pace with it. Among many instances which might be adduced in support of this remark, may be mentioned the audacious pretensions of Count CAGLIOSTRO, with respect to his *Balsam of Life*; the far famed imposition concerning *Animal Magnetism*, by MESMER, and his followers; and more recently, the claims of *Perkinism*, so denominated from Dr. PERKINS, late a citizen of the United States. But it is worthy of remark, that while these kinds of imposture have rather gained ground, those which consist in *Witchcraft*, *Spells*, and *Incantations*, and all the supposed influence of *Demoniacal* powers, in producing health or disease, have manifestly declined within the period under review.

The cultivation and progress of medical science in the *United States* deserves some attention before closing this chapter. It is to be lamented that the want of suitable documents renders a full and satisfactory view of this part of the retrospect impossible. For though little was done in our country, for the science of medicine, until within the last forty years; yet of a considerable portion of that little the knowledge is either totally lost, or preserved only in that vague and indistinct manner in which traditional records are usually presented.

During the greater part of the century under review, and especially the early periods of it, medical science was cultivated with most success in the Middle and Southern States. This was, probably, among other circumstances, chiefly owing to the following causes. In those States many of the physicians were Europeans, who had enjoyed all the advantages of the best schools of physic. It was more common among them than in the Eastern States, owing to the greater wealth of the former, to send young gentlemen to complete their medical education in foreign universities. A taste for researches in natural history also appeared, in a number of instances, particularly in the States of *South-Carolina*, *Virginia*, *Pennsylvania*, and *New-York*, long before a similar taste was formed to the Eastward; and the tendency of such pursuits to enlighten the minds, and extend the inquiries of physicians, is too obvious to require elucidation.

One of the earliest publications in America[r] on a medical subject, was an essay on the *Iliac Passion*, by Dr. CADWALLADER, a respectable physician of Philadelphia, printed about the year 1740, in which the author opposes, with considerable talents and learning, the then common mode of treating that disease.[s] About the same time, Dr.

[r] Before this, WILLIAM BULL, the first native of South-Carolina, and probably among the first natives of America, who obtained a degree in medicine, defended and published, in 1734, at the University of Leyden, his inaugural thesis, *De Colica Pictenum*. He was a pupil of the great BOERHAAVE; and is quoted by Dr. VAN SWIETEN, in the following very respectful terms: *Hæc Colica in regionibus Americæ meridionalibus tam frequens est, ut fere pro morbo Endemio haberi possit; uti ab eruditissimo viro* GULIELMO BULL, *in his oris nato, et nunc feliciter ibi medicinam exercente, sæpius audivi, qui et pulchram de hoc morbo scripsit dissertationem inauguralem, quam in Academia Lugduno-Batava defendit anno* 1734. Vide GERARDI L. B. VAN SWIETEN *Commentaria*, tomus tertius, p. 357.

[s] For several of the names and facts here stated, respecting the early medical writers of America, the author is indebted to the *Review of the Improvements of Medicine*, by Dr. RAMSAY, of Charleston, before quoted. The learning and talents displayed by this gentleman, both as an historian and medical philosopher, entitle him to a distinguished place among the benefactors and ornaments of his country.

TENNANT, of Virginia, published a small work on the *Pleurisy*, in which he brought into view the virtues of seneka snake-root, which were before unknown. Not long afterwards, Dr. JOHN MITCHEL, of Virginia, published an ingenious *Essay on the Causes of the different Colours of People in different Climates*, in which he displayed much anatomical and other learning.[t] About the middle of the century, Dr. THOMAS BOND, an eminent physician of Philadelphia, drew up some useful medical memoirs, which were published in a periodical work in London.[v] Nearly cotemporary with the last mentioned publications, were several by Dr. BENJAMIN GALE, a practitioner of medicine in Connecticut, who was much distinguished among his countrymen for his acquirements and skill, and who particularly published a *Dissertation on the Inoculation of the Small-Pox in America*, which has been often mentioned respectfully.[u] In 1753 Dr. JOHN LINING, of South-Carolina, published an accurate history of the American *Yellow Fever*, which was the first that was given to the world from our continent. Dr. LIONEL CHALMERS, of the same State, in 1754, communicated to the Medical Society of London some useful remarks on *Opisthotonus* and *Tetanus*, which were published in the first volume of their *Observations and Inquiries*. This gentleman also published, in 1767, an *Essay on Fevers*, in which he

t This Essay was sent to Mr. COLLINSON, of Great-Britain, and was intended as a solution of the prize problem on that subject, announced by the *Academy of Bourdeaux*. It was afterwards published in the *Philosophical Transactions*, vol. xliii. p. 102—150. Dr. MITCHEL also wrote ably on the *Yellow Fever*, as it appeared in Virginia in 1742. His instructive manuscripts on this subject fell into the hands of Dr. FRANKLIN, by whom they were communicated to Dr. RUSH. See RUSH on *Yellow Fever*, 8vo. 1794.

v *Medical Observations and Inquiries*, vols. i. and ii.

u It is possible that other medical publications were made in New-England, about this time, equally worthy of notice; but the author has not been so fortunate as to see or hear of them.

gave the outlines of the *spasmodic theory*, which had been before taught by HOFFMAN, and was afterwards more fully illustrated by CULLEN. In 1764 Dr. GARDEN, a scientific physician of South-Carolina, before mentioned, presented to the public an account of the medical properties of *Pink-Root*, and gave, at the same time, a botanical description of the plant. About the same time, Dr. COLDEN, and Dr. JACOB OGDEN, both of New-York, published some valuable observations on a species of *Sore Throat*, which was then prevalent and mortal. The former of these gentlemen also made medical communications on other subjects, which were esteemed.[w] To this list may be added Dr. JOHN JONES, also of New-York, who was greatly distinguished as a surgeon, and who published a work on *Wounds and Fractures*, which is an honourable monument of his learning and professional skill.

Though these physicians were not all of them natives of America; and though their publications were generally small, and cannot be said to be of much value at the present day; yet, considered as indications of a growing taste for medical inquiries, and as among the means of exciting, in a young country, a thirst for knowledge, and an ambition for the attainment of medical fame (as examples of which alone they are mentioned), they doubtless deserve respectful notice in this sketch. They contributed to bring the American practitioners of the healing art, scattered over an immense territory, better acquainted with each other, and, doubtless, concurred with other circumstances, to forward the plans of association and instruction which soon began to take place.

[w] Dr. COLDEN is the gentleman before mentioned as Lieutenant-Governor of New-York, and as having distinguished himself by his knowledge of *Astronomy* and *Botany*.

About the year 1762 Dr. WILLIAM SHIPPEN and Dr. JOHN MORGAN, both natives of Pennsylvania, and youthful friends, who had gone to the University of Edinburgh, to complete their medical education, and who had received its honours, met in London, whither they had repaired for the purpose of receiving instruction from the large hospitals, and excellent teachers of that city. They there agreed to attempt the establishment of a Medical School in Philadelphia. Accordingly, in the year 1764, Dr. SHIPPEN gave the first course of lectures upon *Anatomy* that ever was delivered in America. In 1765 Dr. MORGAN laid before the trustees of the College of Philadelphia a plan for teaching all the branches of medicine, and conferring medical degrees. This plan was adopted; Dr. SHIPPEN was recognized as Professor of *Anatomy*, and Dr. MORGAN was appointed Professor of the *Institutes of Medicine*, and soon afterwards began to teach them. In the year 1768 Dr. ADAM KUHN, who had studied under the celebrated LINNÆUS, was appointed Professor of *Botany*, and of the *Materia Medica;* and in 1769 Dr. BENJAMIN RUSH, who had just completed his medical studies in Europe, was chosen Professor of *Chemistry*. To these gentlemen was added Dr. THOMAS BOND, who was selected to give *Clinical Lectures*, on the cases of disease in the Pennsylvania Hospital. The first American Medical School, thus organized, became the resort of students from every part of the then Colonies: It has since undergone considerable changes, by the death and resignation of Professors, and new appointments; but continues to flourish; and will now bear a very honourable comparison, at least with regard to the talents and learning of its Professors, with the most respectable institutions of a similar kind in Europe.

In 1764 Dr. SHIPPEN lectured to *ten* students. In the season of 1801—2 the number of students attending the different Medical Professors amounted to *one hundred and thirty*, of whom *twenty-one* were admitted to the degree of Doctor of Medicine.

'The laudable example set by the physicians and college of Philadelphia, soon excited the zeal of the physicians of New-York to establish a medical school in *King's College;* accordingly, in 1767 a letter was addressed to the governors of that institution, by Drs. SAMUEL CLOSSEY, PETER MIDDLETON, JOHN JONES, JAMES SMITH, SAMUEL BARD, and JOHN V. B. TENNENT, urging the propriety and importance of attempting to form a plan of medical instruction, and offering their services for carrying it into effect. In consequence of this letter the governors, a few days afterwards, elected Dr. CLOSSEY Professor of *Anatomy*, Dr. MIDDLETON Professor of *Physiology* and *Pathology*, Dr. JONES Professor of *Surgery*, Dr. SMITH Professor of *Chemistry* and *Materia Medica*, Dr. BARD Professor of the *Theory and Practice of Physic*, and Dr. TENNENT Professor of *Midwifery*. In 1770, in consequence of the death of Dr. TENNENT, and the removal of Dr. SMITH out of the province, the office of instruction in *Materia Medica* was committed to Dr. MIDDLETON, and *Chemistry* to Dr. BARD. Lectures were regularly given by the above named gentlemen; but no medical degrees had been conferred by the college, when the revolutionary war entirely deranged, and, in effect, destroyed the whole establishment.

In 1784 the Regents of the University made an attempt to revive the medical school, and went so far as to appoint several Professors in *Columbia College* (the new style by which *King's College* became known, on the change of government), for the pur-

pose of pursuing the former plan of instruction But the gentlemen so appointed did not all deliver lectures; the courses actually given were short and incomplete, and the undertaking languished, and finally fell to the ground.

After several other ineffectual attempts to establish a course of medical instruction in the city, the Trustees of Columbia College, in 1792, organized the school on its present plan, and commenced a course, which has succeeded better than any former attempt. The Faculty of Physic, as then constituted, consisted of Dr. SAMUEL BARD, *Dean;* Dr. WRIGHT POST,* Professor of *Anatomy;* Dr. WILLIAM HAMERSLEY, Professor of the *Institutes of Medicine;* Dr. JOHN R. B. RODGERS, Professor of *Midwifery;* Dr. NICHOLL, Professor of *Chemistry;* Dr. RICHARD KISSAM, Professor of *Botany;* and Dr. RICHARD BAYLEY, Professor of *Surgery.* These gentlemen, the greater number of whom had received a regular medical education in Europe, soon commenced the several departments of instruction assigned to them. The first medical degrees were conferred by this institution in 1793; and though it has not grown so rapidly as might have been expected, from the learning and talents of its Professors, yet it holds a respectable station, and has rendered very important services to the interest of medical science in the state.

The third medical school established in the United States, is that in the University of Cambridge, Massachusetts. This institution took its rise from the benefactions of several enlightened and liberal persons, who were desirous of pro-

* By means of the zeal and enterprise of Professor POST Columbia College is possessed of a valuable collection of *Anatomical Preparations;* to complete which that accomplished Anatomist made two voyages to Europe. It is believed that this is the first collection of the kind introduced into the United States, and certainly the best.

moting the knowledge of medical science. Dr. EZEKIEL HERSEY, an eminent physician of Hingham, in that State, who died in 1770, bequeathed one thousand pounds, Massachusetts currency, to be applied to the support of a Professor of *Anatomy and Surgery*. His widow, at her death, left a like sum, to be devoted to the same object. His brother, Dr. ABNER HERSEY, of Barnstable, and Dr. JOHN CUMMING, of Concord, left each five hundred pounds, to be also applied to the encouragement and support of medical instruction.[y] These generous donations were aided by that of WILLIAM ERVING, Esquire, an opulent gentleman of Boston, who, a few years afterwards, gave one thousand pounds towards the support of an additional Professor.[z]

Though the first of the benefactions above stated was made some time before the commencement of the revolutionary war, yet nothing effectual was done toward executing the will of these public spirited donors till near the close of it. In 1781 Dr. JOHN WARREN began to lecture in Boston on *Anatomy* and *Surgery*, and prosecuted his plan for two seasons. In 1783 the government of the University of Cambridge proceeded to organize a regular medical school, when Dr. WARREN was appointed Professor of *Anatomy* and *Surgery*; Dr. BENJAMIN WATERHOUSE, Professor of the *Theory and Practice of Physic*; and Dr. AARON DEXTER, Professor of *Chemistry* and *Materia Medica*. Since that period these gentlemen have regularly de-

y These several sums, amounting to three thousand pounds, Massachusetts currency, are funded, and their annual proceeds equally divided between the Professors of *Anatomy* and *Surgery*, and of the *Theory and Practice of Physic*; each of which Professorships bears the name of HERSEY.

z The bequest of Mr. ERVING was exclusively devoted by him to the support of a professorship of *Chemistry* and *Materia Medica*. This professorship also bears the name of its first and principal benefactor.

livered lectures on the several branches assigned to them; and though the number of students who usually attend them is comparatively small, yet they are annually increasing; and the erudition and talents of the Professors afford a satisfactory pledge that the institution will, at no distant period, reach a much higher station both of respectability and usefulness.

The fourth and last medical school formed in the United States, is that connected with *Dartmouth College*, in the State of New-Hampshire. This establishment, for instruction in medicine, was founded in the year 1798; when Dr. NATHAN SMITH was appointed Professor of *Medicine*, to lecture on *Anatomy*, *Surgery*, *Midwifery*, and the *Theory and Practice of Physic;* and Dr. LYMAN SPALDING Professor of *Chemistry* and *Materia Medica*. A considerable number of young gentlemen have attended the lectures, and several have received the honours of this institution.

The establishment of *Medical Schools* in the United States may be considered as forming a grand era in our national progress, and as producing important effects on the character of our physicians. The happy influence of these institutions has also been much aided by the formation of *Medical Societies*, in almost every State, which have all come into being within the last forty years. The effect of such establishments in exciting a thirst for the acquisition of knowledge; in producing a spirit of generous emulation; in cultivating a taste for observation and inquiry; and in combining the efforts and the skill of physicians, in every part of our country, must be obvious to every attentive mind. Many of the *Inaugural Theses*, defended and published by the students, in the American medical schools, would be considered as honoura-

ble specimens of talents and learning in the most renowned universities of Europe.[a]

Within the last fifteen years of the century under review, medical publications have greatly multiplied in the United States; many of which do equal honour to their authors and our country. Among these the numerous and valuable works of Dr. Rush hold the first place; and to no individual are we more indebted for promoting, both by precept and example, that laudable and enlightened zeal for medical improvements, which has been so happily increasing, for a number of years past, among American physicians. In a catalogue of our medical writers also, Drs. Maclurg, Mitchill, Barton, Ramsay, Caldwell, Currie, and several others, would be entitled to particular notice, did not the limits of the present sketch forbid an attempt to do justice to their respective merits.

In the year 1797, a periodical publication, under the title of the *Medical Repository*, was commenced by Drs. Mitchill, Miller, and Smith, which, from the peculiar circumstances of our country, may be considered as an important event, in noting the successive steps of medical improvement in the United States. In the premature death of the last named gentleman, who bid fair to attain the most honourable eminence in his profession, this work sustained a great loss.[b] It is still, how-

a Within the last ten or twelve years, all the medical schools in the United States have concurred in permitting their medical graduates to write and defend their *Inaugural Dissertations* in the English language. Whether this is to be considered as an improvement, or a literary retrocession, is a question which it is proposed to discuss in another place.

b Dr. Elihu H. Smith was born in the year 1771, at Litchfield, in the State of Connecticut, where his father, a respectable physician still resides. He entered Yale College at the age of eleven; and after leaving that institution, completed his education under the care of the Rev. Dr. Dwight, since President of Yale College, and who at that time presided over an academy of distinguished reputation at Greenfield. After this he pursued a regular course of medical studies under the direction of his father; commenced the practice of physic at Weathersfield in 1792, and removed

ever, prosecuted with undiminished excellence and success; and furnishes at once very reputable specimens of the learning, talents and zeal of many American physicians; and a most useful vehicle for conveying to the public a knowledge of every improvement in the science of medicine.

CHAPTER V.

GEOGRAPHY.

As few sciences are more interesting than Geography, so few have received more attention, or been more improved and extended during the period under consideration. At the beginning of the century, almost half the surface of the globe was either entirely unknown, or the knowledge of it was so small and indistinct, as to be of little practical value. Since that time such discoveries and improvements have been made, that geography has assumed a new face, and become almost a new

to the city of New-York in 1793, where he remained until 1798, when he fell a victim to the yellow fever, which raged with so much violence in the city in the autumn of that year. The surviving Editors of the Medical Repository speak of their deceased colleague in the following honourable terms.

"As a physician, his loss is irreparable. He had explored, at his early age, an extent of medical learning, for which the longest lives are seldom found sufficient. His diligence and activity, his ardour and perseverance, knew no common bounds. The love of science and the impulse of philanthropy directed his whole professional career, and left little room for the calculations of emolument. He had formed vast designs of medical improvement, which embraced the whole family of mankind, were animated by the soul of benevolence, and aspired after every object of a liberal and dignified ambition. His writings, already published, incessantly awaken regret, that the number of them is not greater. They display singular diligence and acuteness of research, the talents of accurate and extensive observation, great force and precision of reasoning, and the range of a vigorous and comprehensive mind." *Medical Repository*, v. ii. p. 214, 215. *second Edition.*

science.' A spirit of curiosity has stimulated mankind to unprecedented activity in exploring remote regions of the earth. Individual voyagers and travellers, and private associations have done much to extend our acquaintance with the globe. Besides the exertions of these, the governments of Great-Britain, France, Spain, Sweden, Denmark and Russia have severally directed, or encouraged expeditions of discovery and of scientific research. To which we may add, that the occasional mistakes and misfortunes of mariners, while they overwhelmed with distress the immediate sufferers, have contributed to enlarge the sphere of our information with respect to distant countries, and thus, by a wise arrangement of Providence, to increase the objects and the means of naval enterprise.

Although in these geographical discoveries Great-Britain has undoubtedly made the most distinguished figure; yet, with respect to time, the honour of priority belongs to Russia. Early in the century, PETER the Great, to whose mind bold and grand enterprises were familiar and habitual, conceived the design of exploring regions of the earth, which had not been before visited by civilized man, and by this means promoting the wealth, cultivation, and aggrandizement of his empire. In pursuance of this design, he formed several expeditions for discovery, which, though not crowned with complete success, were yet considerably useful, and laid the foundation of greater attainments after his death. It was in his reign that several large districts of country in the north-eastern parts of Asia were first visited and explored by Euro-

' By *Geography* here is meant not only what the word strictly imports, viz. a description of the extent, divisions, and aspect of the surface of our globe, but also some of the other *statistical* inquiries, which modern writers, however improperly, have universally agreed to include in geographical treatises.

peans. Under his auspices, some enterprising navigators, in 1713, discovered the chain of islands called the *Kuriles*, on the coast of Kamtschatca. Under the direction of the same monarch, also, Captains BEHRING and TSCHIRIKOW discovered a number of other islands in the adjacent seas, and established a profitable trade with the natives. The former, a native of Denmark, in 1728, first entered the strait which divides Asia from the American continent, and which was afterwards called by his name.[d] This spirit of discovery continued to animate the government, but more particularly the subjects of Russia, for many years after the demise of the Czar. About this time some private adventurers in that country became fired with the ambition of discovering a north-east passage to India Between the years 1730 and 1740, many daring voyagers successively engaged in the prosecution of this plan. Among these, MOROVIEF, MALGYN, SKURAHOFF, MENIN, and LAPTIEF, deserve particular notice.[e] The labours they underwent, and the dangers they encountered, were incredible; but all their exertions and discoveries served only to furnish increasing evidence, that if such a passage exist, it is next to impracticable, and always dangerous.

In 1740 BEHRING undertook another voyage, in the course of which, with wonderful fortitude and perseverance, he traversed the ocean, from

d Though BEHRING sailed into this strait, yet, probably owing to the fog, he did not discern land on the eastern side. The strait was more fully explored, a few years afterwards, by Capt. COOK, who gave it BEHRING's name. He discovered that the two continents, at this place, approach within forty miles of each other. It has been since ascertained, by the voyages of MEARES, DIXON, VANCOUVER, LA PEROUSE, and others, that to the north of this strait the Asiatic shore tends rapidly to the westward, while the American stretches nearly in a northern direction, till, at the distance of about four or five degrees, the continents are joined by solid and impenetrable bonds of ice.

e MAVOR's *abridged Account of Russian Discoveries.*

the coast of Kamtschatka to the Isles of Japan, and furnished information which was highly useful to succeeding adventurers. He was followed by NEVODTSIKOFF, in 1745, PAIKOFF, in 1758, TOLSTYKE, in 1760, and various others of less note, by whom several additional groups of islands, in what is called the Northern Archipelago, were discovered, the character of their respective inhabitants ascertained, and new channels of trade laid open to the commercial world.

While the Russians were thus busily and successfully employed in exploring the north-eastern parts of Asia, and the seas between that country and the American coast, the Southern Ocean became an object of attention to several other European nations. In this immense field for the display of naval skill and enterprise, Captain WOODS ROGERS, an English commander, was the first who distinguished himself. He was followed by FEUILLIE, FREZIER, and BARBINAIS, all of France. To these succeeded CLIPPERTON and SHELVOCKE, of Great-Britian, who, in a voyage of some celebrity round the world, traversed the same seas. Though none of these navigators made very splendid discoveries, yet we are indebted to them all for many details of geographical information, which were at that time highly interesting, and served greatly to instruct and aid those who came after them.

In 1721 the Dutch West-India Company fitted out a squadron, under the command of Commodore ROGGEWEIN, and dispatched him to the Pacific Ocean, in search of unknown countries. The discovery of a Southern Continent was the particular object of this expedition. And although the respectable navigator to whom it was entrusted did not succeed in accomplishing his main purpose, he discovered a number of islands, and was

considered as having made a valuable addition to the geographical knowledge of his time.

In 1735 DON JUAN and DON ULLOA were sent, by command of the King of Spain, to South-America, on an expedition, which was before noticed, for ascertaining the *Figure of the Earth*. Few voyages have been more justly celebrated than this. By the labours of the bold and active Spaniards who conducted the undertaking, and by the faithful, accurate and enlightened observation of the French academicians who were united with them in the grand design, not only their primary object was gained, but large and valuable stores of information were furnished, in astronomy, geography, navigation, and the sciences in general.

Soon after the accession of GEORGE I. to the throne of Britain, he became fired with a zeal for discovery, which had for some time lain dormant in that country. Two voyages were accordingly set on foot, the one under the command of Captain MIDDLETON, and the other under the direction of Captains MOORE and SMYTH, with a view to discover a north-west passage, through Hudson's Bay, to the East-Indies. It is scarcely necessary to say that both these undertakings were unsuccessful with respect to their main object; still, however, they were productive of some useful information; as was also the celebrated voyage of Lord ANSON, undertaken principally for warlike purposes, about the same time.[f] When his present Britannic Majesty came to the crown, the same zeal for geographical discovery continued and increased. The delusive hope of finding a great Southern Continent, which had so long filled the minds of the learned, presented an in-

[f] The account of ANSON's Voyage, which is well drawn, was said to be executed by Dr. WALTERS, a gentleman who accompanied his lordship as chaplain; but the real compiler of the narrative was Mr. ROBINS.

viting object both to his love of science and his love of glory and aggrandizement. Accordingly Captains BYRON, WALLIS, and CARTERET, were successively dispatched, with orders to sail round the world, and to explore with particular care the Southern Ocean. The *Terra Australis incognita*, so fondly sought, continued to elude the search of these enterprising commanders; but they returned laden with much valuable knowledge of the numerous islands which they had discovered, and of other coasts and shores which they had viewed, and which were but partially known to preceding adventurers.

The idea of finding a north-east passage to India was, during a great part of the eighteenth century, generally entertained by navigators. It was before remarked, that the Russians, at an early period of the century, made numerous attempts to solve this important question in geography, but without success; excepting that each succeeding attempt rendered the practicability, and especially the safety of such a passage, still more improbable. In 1773 Captain PHIPPS, since Lord MULGRAVE, was dispatched, under the patronage of the British government, toward the North Pole, on a voyage of discovery. He proceeded as far as the 80th degree of north latitude, where the mountains of ice presented invincible opposition to his further progress. Although the expedition of PHIPPS confirmed the accounts given by the Russians, Dutch, and others, of the impracticability of a passage to the east, through those seas; and although it considerably increased our acquaintance with that part of the globe, not a few believe that such a passage really exists, and that it may yet be found.

But of all the circumnavigators and geographical discoverers who have distinguished the eighteenth

century, Captain JAMES COOK, of Great-Britain, ought undoubtedly to be viewed as the most illustrious, whether we consider the extent or the usefulness of his enterprises. His three voyages, undertaken by order, and at the expense of the British government, and performed between the years 1768 and 1779, were productive of a vast fund of knowledge, equally interesting and valuable, concerning the various parts of the world which he visited. He collected important original information, respecting islands and coasts long before discovered, and supposed to be well known. He discovered many others which had never been before visited by any European. And even where the honour of discovery could not be strictly ascribed to him, yet he observed with such accuracy, and described with such faithfulness, that the interests of science, of commerce, and of humanity, are perhaps more eminently indebted to him, than to any other individual in the same sphere of action, since the days of COLUMBUS.

The discoveries made by this celebrated circumnavigator were numerous. He ascertained that the idea, so long and fondly cherished by geographers, of the existence of a great southern continent, was either entirely without foundation; or, that if such a continent existed at all, it must be given up as inaccessible and useless to man. He demonstrated the impracticability of a north-west passage, to India, which had been for so many generations an object of solicitude and pursuit, and which the attempts to discover had cost so many expensive voyages and lives. He fully ascertained the vicinity of Asia to the American continent, and thus determined the probability of the latter having been peopled from the former.[g] He discovered a

g Before the discovery of the vicinity of the Asiatic continent to America it had long been considered a question of difficult solution, how the

number of islands, particularly *New Caledonia*, and the *Sandwich Islands*, some of them large and populous, and presenting important objects of commercial and scientific pursuit. His observations threw much light on the manners, the trade, the affinities, and the probable origin of nations. And, finally, to the laudable exertions of this distinguished voyager, and to those of the learned men who accompanied him,[4] almost every branch of natural history is indebted for great and valuable improvements. And though to these important services his life was finally sacrificed; yet seldom has the memory of any man been loaded with more just and liberal honours, not only by his countrymen, but by the civilized world.

While Capt. Cook was accomplishing the splendid discoveries which have placed him above all rivalship in the history of modern navigation, the French government, desirous of signalizing itself in the same honourable career, began to project voyages for this purpose. Accordingly, in 1766 M. Bougainville, a naval commander of talents and enterprise, was sent on a voyage of discovery, in the course of which he circumnavigated the globe. His discoveries were numerous and important, consisting, particularly, of a number of islands in the Pacific Ocean. He displayed great abilities as an officer, observed with accuracy, and reported with faithfulness; and the

latter became peopled, as the general *Deluge* destroyed all the inhabitants of the earth, excepting those who were miraculously preserved with Noah, in the *Ark*, which is generally supposed, after the subsidence of the waters, to have rested on a mountain of Asia. So formidable did this difficulty appear to some, that it led them to renounce their belief in the sacred history. It is true, several plausible, and even probable suppositions might be made to avoid this impious alternative; but the discoveries of Cook, and succeeding navigators, show that there is no difficulty in the case. The two continents are now known to approach so near to each other, that, even throwing out of view the possibility of passing from one to the other on the *ice*, the passage might easily have been effected by means of *canoes* or small *boats*.

[4] Sir Joseph Banks, Dr. Solander, Dr. Forster, and several others.

instruction with which his narrative abounds shows him to have been a man of an enlightened and liberal mind. In firmness, resolution, and talents for observation, he was probably little if at all inferior to the celebrated Cook; and although the list of his achievements is by no means so large, or so brilliant as those of the British commander, yet his voyage will long be accounted honourable to himself, to his sovereign, and to his country. To Bougainville succeeded Messrs. Pages and Surville, who also made a number of valuable discoveries and observations, especially in the Southern Ocean, which have secured for their names an honourable place in the history of modern voyages. In 1771 Kerguelen, Marion, and Du Clesmur, were successively busied in exploring the same seas, in quest of a southern continent. And though the additions which they made to our knowledge of the globe were by no means great, yet they were such as to entitle them to respectful mention in the present sketch.

Soon after the peace of Paris, in 1783, a new voyage of discovery was projected by the French government, and preparation made for carrying it into effect. The objects of this expedition were to improve geography, astronomy, natural history, and philosophy in general; to collect accounts of the customs and manners of different nations; and to open new fields of commercial enterprise. Never, probably, was the plan of a voyage more enlightened and extensive, the instructions given to its conductors more scientific and precise, or the provision made for its execution more liberal and perfect.[i] The immediate direction of it was committed to Messrs. de la Perouse and de Langle, accompanied by a number of learned men, who, in 1785, sailed

[i] See the voyage of la Perouse, particularly vol. i.

from France, under the most favourable auspices. Seldom has any expedition of the kind excited so general an interest throughout the civilized world, or promised more brilliant success. The melancholy fate of LA PEROUSE and his companions is well known. Happily, however, all knowledge of the voyage is not lost with its unfortunate conductors. From the accounts which have been published, it appears that we are indebted to them for some important geographical discoveries, especially on the north-western coast of America, and on the eastern coast of Asia, and in the seas between that continent and Japan. From them, also, the accounts of some preceding navigators have received satisfactory confirmation; the mistakes of others have been corrected; and impositions under which the learned world had long lain, either through the ignorance or dishonesty of their authors, have been detected and removed.

The discovery of the great extent of *New-Holland* deserves to be mentioned among the most important acquisitions in modern geography.—That large portion of our globe, which may, indeed, be called, with propriety, a new *continent*,[j] had been discovered as early as the beginning of the seventeenth century, and, as some suppose, earlier;[k] but for more than a hundred years after this discovery, little was known respecting it. Many supposed it to be a part of the great southern continent, for which navigators had been so long and eagerly searching. In 1770 the celebrated Cap-

[j] The length of *New-Holland* is about 2730 miles, and its breadth about 1960; so that its extent is but a quarter less than that of *Europe*. It does not appear to be yet reduced to an absolute certainty, whether the whole of this great territory is a continued tract of land, or divided into two or more islands, by narrow straits.

[k] Mr. PINKERTON, the latest, and probably the best systematic writer on Geography in the English language, seems rather inclined to adopt the opinion that New-Holland was discovered by the Portuguese and Spaniards, near a century before the Dutch navigators saw *Van Diemen's Land*.

tain Cook visited and explored the eastern coast of New-Holland, to the extent of near two thousand miles. In 1773 its *insular* situation was ascertained by Captain Furneaux. Since that period much geographical and other information respecting it has been obtained, and presented to the public, by Hunter, Marshall, Collins, and several others, who have done much toward investigating the appearance and productions of some important portions of that extensive country.[1]

To the above may be added the discovery of the *Pelew Islands*, in 1783, by Captain Wilson; the discovery of several islands, a few years afterwards, by Captain Shortland, between *New-Holland* and *Java*; the discovery of another cluster, about the same time, by Captain Marshall, in the seas between *New-Holland* and *China*; and the still more interesting information given us by the successive voyages of Portlock, Dixon, Etches, Meares, and Vancouver, concerning the north-western coast of America. By the last of these gentlemen, particularly, we have been made acquainted with the existence of islands, on that side of our continent, not less numerous or extensive than those on the eastern side; and with many new facts, which throw light on the geography, productions, and advantages of that part of the globe.

The Spanish nation was once among the most adventurous and enterprising in Europe. The discoveries made in former times under their auspices, and the talents and atchievements of their naval commanders, raised them high in the scale of national greatness. This spirit has been, in a great measure, dormant, for near a century and a half. Excepting the voyage of Don Ulloa,

[1] See the *Voyage of Governor* Phillip. 4to. 1789.

no expedition of any magnitude, for promoting knowledge, had been instituted by the Spanish government for a long time previous to that which is about to be mentioned. The published accounts of Cook's voyages soon excited the curiosity and the jealousy of that nation. The government fitted out several vessels, at different times, for the purpose, and with the hope, of rivalling, if not surpassing, the exploits of the far-famed English discoverer. Of these attempts, the latest and most conspicuous was that made in 1789, under the direction of Don Malespina and Don Bastamente. These commanders deserve an honourable place among the geographical discoverers of the century. They made many valuable maps and charts of coasts, particularly on the American continent, which, though visited before, had not been satisfactorily explored or delineated. They discovered a new cluster of islands in the Southern Ocean; and contributed not a little to extend our knowledge of navigation, natural history, and the habits and manners of various savage nations, of whom little was before known.

Besides the more distinguished voyages which have been enumerated, several others are entitled to notice in the present sketch, as having contributed to the improvement of geography. The voyages of Nieuhoff and Osbeck, to *China*, early in the century; the voyage of Chabart, in 1753; that of Courtanveaux, in 1768; of Stavorinus, to some of the Asiatic Islands, in 1768; of Kerguelen, to *Iceland*, *Greenland*, *Shetland* and *Norway*, in 1772; of Forrest, in 1774; of De la Crennie, Borda, and Pingre, in 1778; of Marchand, round the world, in 1790; of Entrecastaux, in search of la Perouse; of the Missionaries to the South-Sea Islands, and several others, who have all furnished some new and valuable in-

formation concerning the countries which they respectively visited.

From the foregoing very imperfect view of what has been done by the principal *Naval* discoverers of the eighteenth century, to extend our knowledge of the globe, it will appear to form a great amount of geographical improvement. Their achievements, however, form but a part of our acquisitions in geography: for, while discoveries by sea have succeeded each other with astonishing rapidity, enterprising *Travellers* have been equally diligent, bold and persevering, in exploring the interior of countries before unknown, and in making us acquainted with their territorial limits, their governments, manners, riches, and science. Some notice of these will be necessary, in order to give a tolerable exhibition of modern advances in geographical knowledge.

At the beginning of the century under consideration, the greater part of *Asia* was comparatively little known. While the names of its various kingdoms, especially on the sea-coast, were familiar to the scholar, their internal limits and condition were very imperfectly understood even by the best informed. But, since that time, this defect of information has been so richly supplied, that little seems wanting to gratify the curiosity of the most inquisitive.

PETER the Great, after the battle of Pultowa, sent many Swedish prisoners into *Siberia*. Until that time little had been known concerning the interior of those northern regions. STRAHLENBERG, one of the prisoners, employed himself in exploring the country, for the promotion of geographical knowledge. He collected and published much important information; and his map of that

part of Asia which he delineated, and presented to the public in 1737, may be considered as laying the first foundation for any thing like accurate acquaintance with that portion of the Asiatic continent. The knowledge derived from STRAHLENBERG has been since greatly improved and extended by the travels of Professor PALLAS and others.

About the year 1716, Dr. SHAW, an English gentleman of character, travelled into *Syria* and *Palestine*, and collected much valuable information concerning those countries, particularly calculated to elucidate and confirm the sacred history. In 1720 Mr. BELL travelled, in the suite of the Russian Ambassador, from *Petersburgh* to *Pekin*, and, in the course of his journey, made many curious observations on that part of Asia through which he passed, which he afterwards presented to the public in a very interesting form. At several later periods *Syria* has been visited, and many additional accounts respecting it given by Mr. DAWKINS,[m] the Abbé MARITI, M. VOLNEY, M. CASSAS, and Mr. BROWNE. During the same period, our knowledge of *Arabia* has been extended by the travels of NIEBUHR, SAUVEBOEUF, and others. *Persia* has been also more fully explored than ever before, by HANWAY, Count DE FERRIERES, SAUVEBOEUF, FRANKLIN, GMELIN, PALLAS, and FORSTER. The geography and condition of *Hindostan* have been elucidated in a very interesting manner by HODGES, BARTHOLOMEO, FORSTER, and, above all, by Major RENNEL, whose map of that country, and his memoir accompanying it, have been pronounced, by a good judge, one of the most instructive and valuable geographical presents ever made to the public.[n]

[m] The materials collected by this gentleman, who visited Syria in 1751, were compiled into a very respectable and authentic work, entitled the *Ruins of Balbeck*, and published in 1757, by Mr. ROBERT WOOD.

[n] *Historical Disquisition concerning India.* By WILLIAM ROBERTSON, D.D. F.R.S. 8vo. 1791. *Preface.*

Toward the close of the seventeenth century, some valuable information respecting *China* had been obtained through the medium of Christian Missionaries from Europe. Since that period our acquaintance with China has been greatly extended. For this we are chiefly indebted to the works of DU HALDE, GROSSIER, STAUNTON, and VAN BRAAM. Few works have been read with more interest than the celebrated account of Lord MACARTNEY's Embassy, by Sir GEORGE STAUNTON; and seldom has any work of the kind been found more rich in curious information.—*Tartary* has been, during the same time, partially explored by various travellers; the *Birman Empire*, by SYMMES; *Tibet*, by TURNER; *Kamtschatka*, by BELL, LESSEPS, and others.—To the above sources of information concerning different parts of Asia, may be added the *Asiatic Society* at *Calcutta*, and particularly its late illustrious President, Sir WILLIAM JONES, whose diligence and success in investigating every avenue of knowledge, relating to the arts, sciences, literature, government, morals and religion of the principal Eastern Empires, were only equalled by his exalted virtues, and his stupendous general learning, which render him a prodigy of the age in which he lived.[o]

Much new and valuable information respecting the *Asiatic Isles* has also been obtained, and laid before the public, by various modern travellers. Since the time of KŒMPFER, *Japan* has been visited by THUNBERG, and others, who have made interesting additions to what was before known concerning that empire. The *Philippine Islands* have been successively visited and examined by SONNERAT, FORREST, and STAVORINUS; the *Sunda*

[o] See his *Works*, lately published, with great splendor, in 6 vols. 4to. See also the *Asiatic Researches—passim.*

Islands, by BEECKMAN, MARSDEN, FOERSCH,[p] SONNERAT, THUNBERG, FORREST, and LE POIVRE; *Amboyna* and *Celebes* by RUMPHIUS; and *Ceylon* by THUNBERG; besides the numberless details received concerning less important islands, and by less conspicuous travellers, at different periods of the century.

At the commencement of the period under review, the interior of *Africa* was even less known than the Asiatic continent. In fact, little more had been done than to survey the coasts, and to mark the capes and harbours of this quarter of the globe. But since that time, by the exertions of a number of intelligent and persevering travellers, our knowledge of that extensive country has rapidly increased; and there seems to be a fair prospect of our curiosity being, at no great distance of time, much more fully gratified. Early in the century, the travels of Dr. SHAW into *Barbary*, of POCOCKE and NORDEN into *Egypt*, and of KOLBEN to the

[p] FORSCH's narrations are not always to be relied on. His celebrated account of the *Bohun Upas* tree, said to grow in the Island of *Java*, has been long a monument of his credulity, or of his disposition to exaggerate. It is somewhat surprising that Dr. DARWIN should treat this account with so much respect. (See the notes to his *Botanic Garden.)* The truth is, if we may credit the declaration of the most creditable modern travellers, no such tree exists. It is certain, however, that the vegetable poisons of some Asiatic islands are uncommonly numerous and extremely virulent. In the island of *Celebes* they are so frequent and deadly that it has been called the *Isle of Poisons*. It produces, we are told, the dreadful *Macassar* poison, a gum which exudes from the leaves and bark of a species of *rhus*, probably the *toxicodendron*. This species, together with the other poisonous trees on the same island, is called by the natives *ipo* or *upas*. Such, indeed, is the deleterious activity of this tree, that, when deprived of all poetic exaggeration, it still remains unrivalled in its powers of destruction. From the sober narrative of RUMPHIUS, we learn that no other vegetable can live within a nearer distance than a stone's throw; that birds, accidentally lighting on its branches, are immediately killed by the poisonous atmosphere which surrounds it; and that, in order to procure the juice with safety, it is necessary to cover the whole body with a thick cotton cloth. If a person approach it bare-headed, it causes the hair to fall off; and a drop of the fresh juice, applied on the skin, if it do not produce immediate death, will cause an ulcer very difficult to be cured.—See PINKERTON's *Geography*, vol. i. p. 517.

Cape of Good-Hope and the parts adjacent, furnished the civilized world with much valuable information concerning those countries. At later periods *Egypt* has been explored upon a more satisfactory and philosophical plan, by NIEBUHR, a commissioner of the King of Denmark for this purpose; and by SAVARY, VOLNEY, and SONNINI, distinguished travellers of France. To which may be added the interesting communications respecting the geography and natural history of that country, by the learned men lately sent thither, in connection with the far-famed and extraordinary expedition by the French government.

The interior of *Southern Africa* has, within a few years past, been explored and made known to us by DE LA CAILLE, THUNBERG, SPARMAN, VAILLANT,[q] PATTERSON, and BARROW; while the *Northern* parts have been visited and examined by POIRET, LEMPRIERE, CHENIER, HOEST, AGRELL, and others; from whose travels a great mass of new and curious facts may be derived, respecting the natural, civil, and moral condition of those barbarous countries.

Prior to the year 1768 little had been heard or known of the great kingdom of *Abyssinia*, from the time of the Jesuit LOBO, until that period. It was in the above mentioned year that Mr. BRUCE, a Scottish gentleman, well known in the annals of modern travel, undertook to explore that extensive territory, with a particular view to ascertain the source of the *Nile*. The dangers which he encountered in this enterprise, the difficulties which he overcame, and the views which he exhibits of the countries which he visited, present a very

q Both SPARMAN and VAILLANT, especially the latter, have been charged with being deficient in that first of all requisites in a traveller, *fidelity*. But allowing for a mixture of fiction in their statements, they have certainly given us much curious and valuable information.

amusing and instructive spectacle to the inquiring mind, notwithstanding the occasional errors into which he falls, and the inordinate vanity which appears in every page of his narration. It has been said, that to this ardent and intrepid man we are indebted for more important and more accurate information concerning the interior of Africa, and especially concerning the nations established near the Nile, from its source to its mouths, than all Europe could before have supplied. After BRUCE, the next traveller of note, who undertook to explore the same country, and the parts adjacent, was Mr. BROWNE, who went through *Abyssinia* and *Egypt;* visited several large districts into which Europeans had never before penetrated; and, by the account given to the public of his travels, has considerably enlarged the sum of our geographical knowledge.

In 1788 a number of the nobility, and other gentlemen of liberal curiosity, in Great-Britain, formed an association, the express object of which was to explore the interior of Africa. This object they have pursued with a laudable zeal, and with a very honourable and gratifying success.[r] The successive travels of HOUGHTON, LUCAS, LEDYARD,[s] and PARK, under their direction, have

[r] See the *Proceedings of the African Association.*

[s] Mr. JOHN LEDYARD was an American, born in the State of Connecticut. He entered Dartmouth College, in New-Hampshire, at the usual age, with a view to the study of Divinity; but, being obliged to leave that institution, on account of the narrowness of his circumstances, before his education was completed, he resolved to indulge his taste for activity and enterprise. Accordingly, he engaged as a common sailor on board a ship bound from New-York to London. On his arrival there he entered as corporal of marines with the celebrated Capt. COOK, then about to sail on his third voyage of discovery. Young LEDYARD was a favourite with that illustrious navigator, and was one of the witnesses of his tragical end. After this he travelled many thousand miles through the northern parts of Europe and Asia, intending to pass from the latter to the American continent, and traverse the interior of his native country. But being arrested in the pursuit of this plan by order of the Empress of Russia, he at length returned to England, where, in 1788, he engaged in the service of the African Asso-

been productive of much new and curious information concerning the countries which they visited. The last of these gentlemen, in particular, has recently brought to our knowledge a more interesting and important number of facts concerning the moral, political, and physical condition of *Western Africa*, than had been done by any preceding traveller.[t] Nor is it a circumstance of small moment, in estimating the value of Mr. PARK's travels, that they have called forth, from Major RENNELL, a most learned and instructive body of remarks, and other materials for throwing light on the geography of that extensive country. The succession of maps, delineating important portions of Africa, published by this last named gentleman, between 1790 and 1800, forms a curious series of documents respecting our progressive knowledge of that quarter of the globe. The publications of LOYART and DEGRANDPRE also contain some valuable information concerning *Western Africa*, particularly the large territory included under the names of *Congo* and *Loango*.

In 1791 a society was formed in Great-Britain, by a number of benevolent persons, under the name of the *Sierra Leona Company*. The principal design of this society was to obtain a settlement, on that part of the coast of Africa called by the name, which they assumed, for a large body of destitute Africans, or descendants of Africans, then in the British dominions; and, through the medium of this colonial establishment, to do something toward the introduction of knowledge and civiliza-

ciation, for the purpose of exploring the interior of that country. In pursuance of this agreement, he reached Cairo, in Egypt, in the month of August of the same year. He had, however, proceeded but little way on his travels, when death unexpectedly terminated his career.

t The narrative of PARK's journey is said to have been written by the late BRYAN EDWARDS. See *History of the West-Indies*, vol. iii. Advertisement by Sir WILLIAM YOUNG.

tion into those benighted regions. Although instituted with a different view, the exertions of this society have subserved the cause of geographical discovery. The messengers and agents of the association have added not a little to our knowledge of Africa. Among these, Messrs. WATT and WINTERBOTHAM deserve to be honourably mentioned. Their enterprising journey into the interior of the country, and especially the information which they furnished respecting the *Foulah* nation, entitles them to the thanks of every lover of humanity and of science.

New light, of a curious and interesting kind, has also been thrown, during the period under review, on the geography and condition of some of the *African Islands.* For much of this information we are indebted to FLACOURT, ADANSON, ROCHON, MARION, COOK, GRANT, and BERNARDIN DE ST. PIERRE. Several of these gentlemen observed with a philosophic eye, and communicated their knowledge with a scientific precision, which it may be asserted are found with peculiar frequency among modern travellers.

A large portion of *Europe* was so well known, antecedently to the commencement of the period which we are considering, that geographical *discoveries* could scarcely have any place with respect to it. But from this general remark must be excepted the Empire of *Russia*, and *Turkey in Europe.* Concerning these important portions of the globe, the last age has brought to light much valuable information beyond what the most learned of the preceding century possessed.

When PETER the Great mounted the throne, the *Russian Empire* was, properly speaking, ranked among the *incognita* of the earth. That celebrated monarch early engaged in projects for exploring the interior of his vast dominions, and developing

the resources, the capacities, and the wants of his people. Much was done, during his reign, toward the accomplishment of this object; but he left still more to be performed by his successors. His design was prosecuted with great zeal and success, by CATHARINE II. who, in 1768, sent a number of learned men to different parts of her extensive empire, to ascertain its physical, moral, and political condition. They were ordered to pursue their inquiry upon the different sorts of earths and waters; upon the best methods of cultivating the barren and desert spots; upon the local disorders incident to man and animals, and the most efficacious means of relieving them; upon the breeding of cattle, and particularly of sheep; on the rearing of bees and silk worms; on the different places and objects of fishing and hunting; on minerals; on arts and trades; and on forming a *Flora Russica*, or collection of indigenous plants. They were particularly instructed to rectify the longitude and latitude of the principal towns; to make astronomical, geographical, and meteorological observations; to trace the courses of the rivers; to make exact maps and charts; to be very distinct and accurate in remarking and describing the manners and customs of the different people, their dress, languages, antiquities, traditions, history, and religion; and, in a word, to gain every information which might tend to illustrate the real state of the whole empire.[v]

In this arduous service, PALLAS, GMELIN, LEPECHIEN, GULDENSTÆDT, and others, were, about the same time, employed, and furnished with every accommodation, in the power of their royal patron, which could facilitate their pursuit. It is generally known that they performed the task committed to

[v] COXE's *Travels into Russia*, &c. vol. ii. p. 350, 351, &c. For the particular account of the different routes, &c. of these learned travellers, see TOOKE's *View of Russia, Introductory Discourse.*

them with ability and faithfulness; and that they collected and communicated rich stores of knowledge relating to the districts which they respectively visited. Indeed, their researches may be considered as the basis of all the best and most authentic accounts which have been subsequently given to the world concerning that growing empire. The observations made by Professor PALLAS, during his laborious and persevering tours, have been regarded as peculiarly instructive and valuable.

Since the travels and discoveries of the Petersburgh academicians above named, a number of other travellers have adventured in the same ample field of observation and inquiry. There is not room in this place to recount their names or achievements. The travels of Mr. COXE, the well known British tourist, in that country, furnish the reader with much instruction and entertainment. But probably the most complete and satisfactory accounts of Russia now extant, are to be found in the *Physical, Moral, Civil, and Political History of Russia, ancient and modern*, by M. LE CLERC; in the *Description of all the Nations in the Russian Empire*, by M. GEORGE; and, lastly, in the *View of the Russian Empire*, by Mr. TOOKE.

Concerning *Turkey in Europe*, the progress of our knowledge has been slower and less interesting. It still remains, in a great measure, among the unknown parts of the earth. But there is little ground to regret our ignorance of it, since there seems abundant reason to conclude, that it presents but few grand or pleasing objects to the inquiring mind. Fixed as it were, in a state of intellectual and moral congelation, its inhabitants offer nothing to interest, or to instruct, save an example of evils to be abhorred and avoided. Such, however, as they and their country are, we have derived some

valuable information concerning them from various sources. Among these, perhaps, the most respectable are the accounts of PEYSSONELLE, SESTINI, GUYS, and TODERINI; the travels of Baron DE TOTT, DEMO, STEPHENOPOLI, BOSCOVICH, and SCROFANI; to which may be added, as in a certain view worthy of attention, those of Lady MONTAGUE, Lady CRAVEN, and Mr. DALLAWAY. But probably the most full and satisfactory account of this portion of the globe, to be found in any one work, is comprised in the *Survey of Turkey*, by Mr. ETON. From these sources a tolerable idea may be formed, not only of the geography, strictly speaking, but also of the manners, arts, literature, and general condition of that degraded country.

Besides the travellers above mentioned, who have explored the interior of countries before little known, the last century is remarkable for having produced an unprecedented number of that species of works denominated *Travels*, *Tours*, and *Journies* into parts of the world before generally known, and frequently visited. To attempt an enumeration of these would far exceed the limits of the present sketch; and to select a small portion out of the immense number, would almost necessarily involve some injustice to the rest. Though these travellers have added little to the stock of geographical knowledge, properly so called, they have thrown much light on the manners and customs of various nations; they have made the literati of different countries better acquainted with each other, and many of them abound with pictures of human nature at once lively, just, new, and highly interesting. Perhaps, indeed, this characteristic of modern travels deserves to be mentioned as, in some degree, peculiar to the last age. That there is a philosophic cast, an attention to the different shades of human character, and an aspect of

scientific inquiry more prevalent in some late productions of this class, than can be found in most of their predecessors, has probably been often remarked by the most superficial readers.

At the beginning of the eighteenth century, by far the greater part of the *American Continent*, and even of what is now called the *United States*, was unknown territory. Since that time a considerable portion of it has been explored, and much curious information respecting it furnished by numerous travellers.

Different portions of the southern and south-western parts of *North-America* have been visited and explored, during the period under review, by LAWSON,[u] BOSSU,[w] BRICKELL, ADAIR,[x] BARTRAM,[y] D'AUTEROCHE, and CLAVIGERO,[z] whose publications abound with instructive and interesting narratives concerning the territorial limits, the inhabitants, and the natural history of the districts which they traversed. Much information concerning the geography of the western parts of North-America has been given by BOON, CARVER,[a] HUTCHINS, and others; and the northern and north-western, by CHARLEVOIX, CURRY, LONG,[b] POND, CARTWRIGHT, HEARNE,[c] HENRY, TURNER, and MACKENZIE. The last named traveller has the honour of being the first white man who ever reached the Pacific Ocean by an over-land progress from the east.[d]

u A New Voyage to Carolina, containing the exact description, and Natural History of that country. 4to. 1709.

w Travels in Louisiana. Translated by FORSTER. 2 vols. 8vo. 1771.

x Account of the American Indians.

y Travels through North and South-Carolina, Georgia, &c.

z History of Mexico. 2 vols. 4to.

a Travels.

b Travels of an Indian Interpreter. 4to.

c Journey from Prince of Wales's Fort, in Hudson's Bay, to the Northern Ocean. 4to. 1795.

d Mr. MACKENZIE, now Sir ALEXANDER MACKENZIE, ascertained, beyond all dispute, that there is no northern communication between the

Besides the travellers who, with laudable enterprise, have done much toward exploring such parts of our country as were, a few years ago, wholly unknown, we are indebted to many other gentlemen for various publications, which have served greatly to improve American geography. The *Geographical Essays* of LEWIS EVANS, published in 1755, together with the maps accompanying them, formed an important step in the progress of our knowledge of that part of America of which he treated. The geography of *Virginia* has been well illustrated by Mr. JEFFERSON; of *Kentucky*, by Mr. IMLAY; of *New-Hampshire*, by Dr. BELKNAP; of *Vermont*, by Dr. WILLIAMS; and of the District of *Maine*, by Mr. SULLIVAN. But the most full and satisfactory work on American geography, hitherto given to the public, is that by the Rev. Dr. MORSE, whose talents, zeal, and industry, in collecting and digesting a large amount of information on this subject, are well known, both in Europe and America, and have been very honourably rewarded by public patronage.

The geography of *South-America*, though far from being so fully and accurately understood as could be wished, has yet been much investigated and made known during the last age. At an early period of the century Don ULLOA, who was before mentioned, visited and spent much time in *Peru*, *Chili*, the kingdom of *New-Granada*, and several of the provinces bordering on the *Mexican Gulph*. At the same period, and in the same part of the New World, Messrs. CONDAMINE, GODIN, and BOUGUER, travelled for several years, and communicated to the public a great variety, and a very valuable amount of information respecting

Atlantic and Pacific Oceans, except at so high a latitude as to be rendered wholly impracticable by perpetual ice. This long contested question will probably be considered henceforth as settled.

the interior of those extensive countries. The travels also of CATTANEO, HELMS, and DOBRIZHOFFER, in *Peru* and *Paraguay;* of BANCROFT and STEDMAN, in *Guiana;* of ARMATEUR, in *Cayenne;* and of FALKNER, in *Patagonia*, have contributed greatly to enlarge the sphere of our knowledge respecting the southern division of this western continent. Don MALESPINA, before mentioned, made an excellent survey of the coast, from *Rio de Plata* to *Panama.* But the best geographical view ever published of a large portion of South-America is exhibited in the *Mapa Geographica del America Meridional*, published in 1775, by Don JUAN DE LA CRUZ, Geographer to the King of Spain.[e]

Besides all the discoveries and improvements stated in the foregoing pages, and to which the enterprise of navigators and travellers has given birth, the last age is distinguished, above all others, by the production of large and excellent systematic works on the subject of geography. The difference in fulness and accuracy, between the geographical treatises published at the commencement of the eighteenth century, and those which appeared toward the close of it, can be adequately conceived by none but those who have compared them together. The successive works of GORDON, BOWEN, MIDDLETON, COLLYER, SALMON, GUTHRIE,[f] and PAYNE, held an important rank at the dates of their respective publications. The extensive geographical work of Mr. BUSCH-

[e] This map was republished, in London, with improvements, by FADEN, in 1799.

[f] This work, it is said, was not compiled by GUTHRIE, whose name it bears, but by another person, who had the permission to avail himself of the popularity of that gentleman's character. The stratagem succeeded; the work, with all its deficiences and errors, immediately gained general patronage, and entirely supplanted SALMON's Geographical Grammar, which had before enjoyed universal favour.

ING, of Germany, may be considered as, on the whole, the most laborious and complete of the age. To these may be added the large and very respectable work of Professor EBELING on the geography of America,[g] and that of BRUNS on Africa.

The elucidations of *Ancient Geography*, by several modern writers, are highly interesting and valuable, and deserve to be regarded among the signal improvements of the eighteenth century. The service rendered to science in this way by M. D'ANVILLE, is too well known to require eulogium. The more recent works, of a similar kind, by GOSSELLIN, of France, and by RENNELL, of Great-Britain, also do honour to their authors, and to the age.

In few respects has the last century displayed greater improvement than in the number, accuracy, and elegance of its *Maps*. The maps of M. DELISLE were early and extensively celebrated. Since that time the maps of CASSINI,[h] D'ANVILLE, LA ROCHETTE, ROBERT, WELLS, SOTTZMAN, RENNELL, ARROWSMITH, and many others, are entitled to honourable distinction. At the beginning of the period under review there was scarcely a map in existence of any part of the American continent, that deserved the name. Since that time almost every known part, and especially the United States, have been delineated with accuracy and neatness.[i] The

g The diligence and success with which Professor EBELING has laboured to elucidate the Geography and History of the American States, are worthy of the highest praise. There is no doubt that the information which he has collected, and has been for some time engaged in laying before his countrymen, on this subject, though in some respects imperfect and erroneous, as was unavoidable, is yet by far the most accurate and full that was ever given to the public by an European.

h The map of France, by CASSINI, was begun in 1744, and finished in 1794, in one hundred and eighty three sheets. This is probably the largest map ever formed by human industry.

i It was the wish of the author to have given a list of the best maps of the several American States, which have been formed in the course of the

Charts which have been formed in modern times are also distinguished by their excellence, above all preceding specimens. Among these the *Neptune Orientale* of M. De Mannivilette, the charts of the Atlantic, by Bellin; of the Pacific, by Arrowsmith; of the American coast, by Du Barres and Malespina; of the Western Isles, by Huddart; of the coasts of Spain, by Tofino; the numerous charts of detached islands, coasts, harbours, and straits, by Dalrymple, are among the most respectable. Besides these the charts by Mount, Davidson, Murdock, Laurie, Gilbert, Whittle, Heather, and many more, deserve honourable notice.

The *Gazetteers*, *Atlasses*, and other helps to the acquisition of geographical knowledge, have also become very numerous during the last age. They were not only less common in former periods, but, in fact, little known, and of small comparative value. Their introduction into popular use is a peculiarity of the eighteenth century. The authors and compilers of these are so generally known, that it is unnecessary to enumerate them. Those of Crutwell, Scott, and the Rev. Dr. Morse, are among the latest and best in our language.

Unprecedented pains have been taken, during the period under consideration, to collect into regular series of volumes those accounts of *voyages* and *travels* which might serve to give a connected view of the condition of the globe, and of the activity and adventures of distinguished men

period under review; but the want of correct information deterred him from the attempt. A good map of the State of New-York has been long a *desideratum*. This deficiency is likely to be soon supplied by Simeon De Witt, Esq. Surveyor-General of New-York, who has a large and splendid map of the State in considerable forwardness. From the well known skill and accuracy of this gentleman, little doubt can be entertained but that his work will meet the wishes, and abundantly deserve the patronage of the public.

in exploring distant countries. The collections of this nature formed by HARRIS, CAMPBELL, CHURCHILL, SALMON, GUTHRIE, HAWKSWORTH, DALRYMPLE, and MAVOR, of Great-Britain; by DES BROSSES, of France; by ESTALA, of Spain; and many others, hold an important rank among the instructive and amusing productions of the age.

The discoveries and improvements above stated, besides correcting and enlarging our geographical knowledge, have also led to many and important additions to the stock of *general science*. There is scarcely any part of natural philosophy, or natural history, which has not received considerable improvement from this source. New light has been thereby shed on the doctrines of the *tides*, and the *winds;* the nature and laws of *magnetic variations* have been better understood; the sciences of *zoology*, *botany*, and *mineralogy* have been greatly extended and advanced; immense collections of natural *curiosities* have been made from every known region of the earth; and, what is by no means of least importance, opportunities have been afforded of studying *human nature* in a great variety of forms, of making rich collections from the vocabularies of different *languages*, of comparing *habits* and *customs*, of investigating the *records* and *traditions* of nations scarcely at all known before; and thus of acquiring rich materials towards completing the natural and civil history of man.

Strange as it may appear, our knowledge of *Antiquities*, principally by means of geographical discoveries, and the inquiries naturally flowing from them, has become incomparably greater than was ever before possessed by man. "When the "*Egyptians*," says a modern eloquent writer, "called the *Greeks children in Antiquities*, we may

"well call them children; and so we may call all "those nations which were able to trace the pro- "gress of society only within their own limits. "But now the great map of mankind is unrolled "at once, and there is no state or gradation of "barbarism, and no mode of refinement, which "we have not at the same moment under our "view: the very different civility of Europe and "of China; the barbarism of Persia and Abyssinia; "the erratic manners of Tartary and of Arabia; "the savage state of North-America, and of New- "Zealand, are all spread before us; we have em- "ployed philosophy to judge on manners, and "from manners we have drawn new resources for "philosophy."[j]

Geographical discoveries have led to an unprecedented degree of *intercourse among men.* Though this remark is connected with the subject of the last paragraph, it deserves separate consideration. Toward the close of the seventeenth century, the intercourse between distant nations of the earth was greater than it had been at any former period, and was considered highly honourable to human enterprise: but since that period it has been increased to a wonderful degree; insomuch that at the present time, the inhabitants of the remotest countries have seen and know more of each other, than those, in many cases, who resided comparatively in the same neighbourhood an hundred years ago.

Great advantages to *Commerce* have also arisen from the geographical discoveries above recited. The extension of the *fur-trade* to the north-west coast of America, is one important and beneficial event of this nature. This article of commerce was rapidly becoming more scarce in those parts

j See BURKE's *Letter* to ROBERTSON, in Professor STEWART's *Account of the Life and Writings* of that historian.

of the world from which traders had before obtained it: it was, therefore, a most seasonable and interesting discovery to make them acquainted with a coast on which they might be supplied with the greatest abundance, and which is likely to furnish an inexhaustible store for ages to come. To this signal commercial advantage might be added many others, were it expedient to enlarge on the subject. It would be improper, however, to omit taking notice, that the numerous groups of Islands, lately discovered in the Pacific Ocean, have risen to unexpected importance, and promise to be of still greater utility. These Islands afford very convenient victualling and watering places for ships; and if the civilized nations who visit them were as industrious and successful in introducing among them the blessings of literary, moral and religious knowledge, and the arts of cultivated life, as in initiating them into the vices which corrupt and degrade, we might expect soon to see them become the happy seats of literature, science, arts, and pure Christianity, and, in time, reflecting rich blessings on their benefactors.

The enlargement of geographical knowledge during the late century, has led to an *increase of the comforts and elegancies of life*, in almost every part of the civilized world. By this means the productions of every climate have become known and enjoyed in every other; the inventions and improvements of one country have been communicated to the most distant regions; and the comforts of living, and the refinement of luxury, have gained a degree of prevalence among mankind greatly beyond all former precedent. Never, assuredly, in any former age, were so many of the natural productions, and the manufactures of different countries enjoyed by so large a portion of the human race as at the close of the eighteenth century.

Finally, the geographical discoveries of the last age have contributed to *illustrate and confirm Revelation.* The discoveries of BEHRING and COOK were before-mentioned as throwing light on the population of the New World, and thus tending to support the sacred history. But, besides these, the knowledge gained by modern voyagers and travellers, of the manners, customs, and traditions of different nations, especially of those on the Eastern Continent, has served to illustrate the meaning, and unfold the beauty of many passages of scripture, before obscure, if not unintelligible; and has furnished abundant and striking evidence in support of the Mosaic account of the common origin, the character, the dispersion, and the subsequent history of mankind.[*]

CHAPTER VI.

MATHEMATICS.

THE seventeenth century was the "golden age" of mathematical science. Never, since the revival of learning, has this branch of knowledge been cultivated with such brilliant success as during that period. The grand inventions of *Logarithms*, by NAPIER, and of *Fluxions*, by NEWTON, together with the numerous discoveries and improvements of DES CARTES, BRIGGS, KEPLER, GREGORY, LEIBNITZ, and many others, must ever render the age of those great men a distinguished æra in the annals of mathematics. It is even possible that the grand discoveries of these philosophers, and the

[*] It is intended to illustrate this point more fully in a subsequent part of this work.

unusual lustre of their characters, may have contributed, by an influence far from being unnatural, to repress the ambition and discourage the exertions of some who came after them. But, although the eighteenth century can boast of no discoveries so splendid, nor of any advances so honourable, as belong to the preceding, yet it produced both, in a sufficient degree to secure a reputable place in the history of this sublime science.

Though the *Fluxionary Analysis* had been invented by NEWTON thirty years before, yet that great mathematician first published his new doctrine on this subject in 1704. The controversy in which he became involved with LEIBNITZ, in consequence of this publication, is well known to have been one of the most curious and interesting of the age.[l] It seems to have been long and generally agreed, that the credit of this celebrated invention is due to the illustrious British philosopher, and, of course, that the claim of his German rival was unfounded.[m]

l Soon after NEWTON published his doctrine of *Fluxions*, his book was reviewed in the *Acta Eruditorum* of Leipsic. In the course of this review, an intimation was given that he had borrowed from LEIBNITZ, and that the honour of the invention properly belonged to the latter. Dr. KEILL, Professor of Astronomy in the University of Oxford, undertook the defence of his countryman. After a number of controversial papers had been exchanged on the subject, LEIBNITZ complained to the Royal Society of injustice on the part of NEWTON and his friends. The Society appointed a committee of its members to investigate the questions in dispute, who, after examining all the letters and other papers relating to it, decided in favour of NEWTON and KEILL. These papers were published in 1712, under the title of *Commercium Epistolicum*. 8vo.

m In the eloquent and comprehensive *Eulogium* upon Dr. DAVID RITTENHOUSE, the late President of the American Philosophical Society, pronounced by Dr. RUSH, at the request of the Society, there is the following passage: "It was during the residence of our ingenious philosopher with his father in the country, that he became acquainted with the science of *Fluxions*, of which sublime invention he believed himself for a while to be the author; nor did he know, for some years afterwards, that a contest had been carried on between Sir ISAAC NEWTON and LEIBNITZ, for the honour of that great and useful discovery. What a mind was here! without literary friends or society, and but two or three books, he became, before he had reached his four-and-twentieth year, the rival of the two greatest mathematicians in Europe."

Within the period under consideration several new and valuable branches of mathematics, now in use, have been either wholly discovered, or placed on a footing, in a great measure, if not entirely, new. It will be proper briefly to mention some of the more important of these.

In 1717 Dr. BROOKE TAYLOR invented a new branch of analysis, which he called the *Method of Increments*, in which a calculus is founded on the properties of the successive values of variable quantities, and their differences or increments. This method is nearly allied to NEWTON's doctrine of *Fluxions*, and arises out of it; insomuch, that many of the rules formed for one serve also, with little variation, for the other. By means of the Method of Increments many curious and useful problems are easily solved, which scarcely admit of a solution in any other way. It is, particularly, of great use in finding any term of a series proposed, and also in finding the sums of a series given. In 1763 an ingenious and instructive treatise on this new method was published by Mr. EMERSON, who threw further light upon it. The *Differential Method* of Mr. STIRLING, which he applied to the summation and interpolation of series, is of the same nature with the Method of Increments, but not so general and extensive.

In 1724 M. LAGNY, of France, discovered a new mode of measuring angles, which he denominated *Goniometry*. By means of this method he was enabled to ascertain the measure of angles, without the use of either scales or tables, and with great exactness; a method which exceedingly abbreviated, or rendered wholly unnecessary, many tedious calculations.

In 1746 the Rev. Dr. STEWART, of Scotland, published new and elegant *Theorems*, of great value to the mathematician, by which he extended

the application of geometry to many problems, to the solution of which the Algebraic Calculus had been alone supposed adequate.

About the year 1758 the invention of a new branch of the analytic art, under the name of the *Residual Analysis*, was published by Mr. LANDEN, of Great-Britain. By means of this new operation he enabled the mathematician to solve a variety of problems, to which the method of fluxions had usually been applied, in a way entirely original, and by a process more simple, natural, and elegant, than formerly. He applied this method to drawing tangents, and finding the properties of curve lines, and to the solution of many curious and difficult problems, both in mechanics and physics.

The invention of the *Antecedental Calculus*, a new method of geometrical reasoning, first published in 1793, by JAMES GLENIE, Esq. of North-Britain, also deserves some notice. This is a branch of general geometrical proportion, or universal comparison, derived from an examination of the antecedents of ratios, having consequents, and a standard of comparison given, in the various degrees of augmentation and diminution which they undergo by composition and decomposition. This method proceeds without any consideration of motion or of time, but is, notwithstanding, in the opinion of the inventor, applicable to every purpose to which the celebrated doctrine of fluxions has been or can be applied.

The doctrines of *Tontines*, *Annuities*, and *Reversionary Payments*, were first reduced to system, and brought into use in the eighteenth century. Dr. HALLEY, of Great-Britain, and DE MOIVRE, of France, were among the earliest cultivators of this department of mathematical science. It was afterwards much improved and extended by the successive labours of SIMPSON, PRICE, WEBSTER,

notice.[b] The first *printer* introduced in that Colony, was about the year 1726, when WILLIAM PARKS settled there in that capacity. The first work of any consequence printed in the Colony, was the body of *Laws*, in folio, in 1733, by the person above-mentioned. The foundation of a Library in William and Mary College was early laid. This was augmented from time to time, by various means, particularly by private donations, from several friends of literature, until it became a very respectable collection. The additions to it within a few years past have been few and small; hence it abounds more in ancient than modern works.

Nor was Virginia, by any means, even at this early period, without instances of honourable literary enterprize. The *Histories* of the Colony, published respectively by STITH and BEVERLEY, are generally known. The former was a respectable Clergyman, and President of the College; and though he did not write elegantly, he was a faithful and judicious historian. The latter wrote with less prolixity and tediousness, but, at the same time, with a less satisfactory fulness of information. Several other instances of literary exertion, made at this period in Virginia, might be mentioned, did our limits admit of going into further particulars.

Among the promoters of literature in Virginia, at this time, it will be proper to mention Colonel BYRD, a native of that Colony, who had been liberally educated in Great-Britain, and possessed a very ample estate. Few private persons in America ever collected so large or so valuable a Library

b Some of the names and facts mentioned in this section, relating to the progress of letters and science in Virginia, were communicated to the author, in a letter from Bishop MADISON, of Williamsburgh. The services rendered to the cause of liberal knowledge in America, and particularly in his own State, by this enlightened Philosopher and Divine, are well known.

as he left. He was a very ardent friend to the diffusion of knowledge, and freely opened his Library for the use of all who sought information. Colonel BYRD died about the middle of the century. He made a few small publications, but they were not of a nature to command much of the public attention at this time.

In North-Carolina and Georgia nothing worthy of notice was done for the promotion of literature, until the latter half of the eighteenth century. In those provinces there was not, until this period, a single seminary of learning worthy of the name; no native citizen had been at all distinguished for his attainments in knowledge. Of the few clergymen then residing in those provinces, the greater part were both illiterate and dissipated; and almost all those of the learned professions, who were tolerably well informed, were either foreigners, or had received their education abroad.

The literary situation of South-Carolina, in the former part of the century under review, was much more respectable.[i] At the commencement of this period, all the literary characters in that province were Europeans. The Clergy were few, and not more than one of them had been born in the province. The Physicians were also Europeans, and chiefly persons who had connections with the British army or navy. The same may be affirmed of the Lawyers; these all resided in Charleston, and were from Great-Britain or Ireland. In 1700 a provincial library was established in Charleston, by the munificence of the Lords Proprietors, and of the Rev. Dr. THOMAS BRAY. This introduced a taste for reading among a por-

i For the greater part of what is here stated respecting South-Carolina, the author is indebted to Dr. DAVID RAMSAY, of Charleston, who, on application, favoured him with a full and instructive communication on the subject.

tion of the inhabitants. In 1712 a Free School was established in that city, for "instructing the youth of the province in Grammar, and other arts and sciences, and useful learning, and also in the Christian Religion."[g] In this seminary the Greek and Latin languages were taught, by a succession of able instructors, and some good classical scholars were formed. Besides the free school, several private Academies were also formed a few years afterwards, and had a useful influence. All the teachers in these seminaries were, for a considerable time after their establishment, either from Europe or from the Northern Colonies. The first *printer* appears to have settled in Charleston between the years 1720 and 1730. The first *newspaper* in the Colony was printed in 1730.

The first native of South-Carolina who received a literary degree was Mr. Josiah Smith, who was born in Charleston, in the year 1704, graduated at Cambridge, in Massachusetts, in 1725, and afterwards became a learned and respectable minister of the Presbyterian Church.[h] The next instance of a native of South-Carolina receiving academic honours, was that of Mr. William Bull, who received the degree of *Doctor of Medicine*, at Leyden, in 1735.[i] He was followed by Mr. John Moultrie, who received the same degree from

[g] In this seminary there were two instructors; a Principal, with a salary of £ 400 sterling *per annum*; and an Usher, with a salary of £. 200, both paid from the public treasury. These were liberal salaries considering the time and the situation of the colonists.

[h] Mr. Smith published a volume of *Sermons* in 1752, and several occasional discourses before and after. He also maintained a learned disputation, in 1739, with the Rev. Mr Fisher, on the right of private judgment. He closed an useful and honourable life in 1781, in the city of Philadelphia, whither he had been induced to fly during the Revolutionary war.

[i] The name of Dr. Bull was mentioned in a former chapter. On occasion of his receiving a medical degree at Leyden, he wrote and defended an inaugural dissertation, *De Colicâ Pictonum*. He was afterwards Lieutenant-Governor of South-Carolina.

an University in Europe, in 1749.[m] Both of these were eminent for literature and medical science.

The literary foreigners who came to South-Carolina, at this early period, were numerous. Dr. JOHN LINING, a native of Scotland, and a man of excellent education, came to that Province as early as 1725 or 1730. He was eminent as a physician and philosopher.[n] He corresponded with Dr. FRANKLIN on the subject of Electricity, and was the first person who introduced an Electrical Apparatus into Charleston. Dr. LIONEL CHALMERS, who came to the Colony from Great-Britain in the former part of the century, was also much distinguished for medical science, and for his various and extensive knowledge.[o] Dr. ALEXANDER GARDEN, also from Great-Britain, about the same time, was deservedly celebrated as a physician and natural historian. Mr. MARK CATESBY, an English naturalist, came to South-Carolina in the year 1722, and resided four years in the Colony, where he did much for promoting the knowledge of Botany and Zoology.[p] To these may be

m Dr. MOULTRIE wrote and defended a dissertation, *De Febre Flava.* He was afterwards Lieutenant-Governor of East-Florida.

n In 1740 Dr. LINING prosecuted, and afterwards published, a series of judicious statical experiments. And in 1753 he published a *History of Yellow Fever*, which was the first account of that disease that had been given from the American Continent.

o Dr. CHALMERS published a valuable work on the *Weather and Diseases of South-Carolina*, London, 1776. But his most respectable and useful work, is an *Essay on Fevers*, published at Charleston, in 1767. Besides these, he made several smaller publications.

p MARK CATESBY, F.R.S. was born in England, in the year 1679. He had an early and strong propensity to the study of Natural History; and having some relations in *Virginia*, he determined to gratify his taste for inquiries of this nature, by exploring a part of the New World. He, therefore, went to that Colony in 1712, where he staid seven years, admiring and collecting the productions of the country. During this period he made numerous botanical communications to his friends in Great-Britain. He returned to England in 1719; but soon afterwards, encouraged by Sir HANS SLOANE, Dr. SHERARD, and other naturalists, he determined to make another visit to America, and accordingly embarked for South-Carolina, where he arrived in May, 1722. He now remained four years in the country, exploring *Carolina*, *Georgia*, the *Floridas*, and

added the Rev. ISAAC CHANLER, the Rev. ALEXANDER GARDEN, the Rev. HENRY HAYWOOD, and the Rev. RICHARD CLARKE, all from England, who settled in Carolina, as clergymen, and became conspicuous not only by their learning and talents, but also by means of various publications of more or less value, which yet remain to attest the reality of both.[q]

But notwithstanding the literary taste, conversation, and writings of these individuals, the institutions formed for the diffusion of knowledge were few in number, and by no means of respectable character. For the first thirty years of the eighteenth century, the Free School before-mentioned was the *only* grammar school in South-Carolina. For the next forty years there were only *three* in the Province, and all these were in Charleston, or its vicinity. In 1749 an association was formed in Charleston, for the establishment of a public Library; but it was not till towards the close of the century that this institution grew to any high de-

the *Babama* islands. Returning to England in 1726, he employed himself for a number of years in preparing for publication his great work, entitled, *The Natural History of Carolina, Florida, and the Babama Islands.* The first part of this work appeared in 1730, and it was completed in 1748, in two volumes folio. He died in London, in 1749. GRONOVIUS, of Leyden, called a shrub of the *Tetrandrous* class *Catesbea*, after him.

q The Rev. ISAAC CHANLER was born at Bristol, in England, in 1701, and came to South-Carolina in 1733. He settled, as Pastor of a Baptist Church, on Ashley River, in 1736, where he continued till his death, in 1749. Besides several smaller works, he published, *The Doctrines of Glorious Grace unfolded, defended, and practically improved*, 4to Boston, 1744. The Rev. ALEXANDER GARDEN was a different person from the physician and naturalist of the same name. He made several publications on theological subjects. The Rev. HENRY HAYWOOD arrived in Charleston, from England, in 1739, from which time, till his death in 1755, he was minister to the Socinian Baptists in that city. He translated into English, Dr WHITBY's Treatise on Original Sin, and had prepared for the press a large volume in defence of the Apostolical Constitutions. He published a defence of Dr WHITBY, against Dr GILL, and also a Catechism. The Rev. RICHARD CLARKE, from England, was an elegant classical scholar. He published several pieces on the Prophecies, and on Universal Redemption. He was for some time Rector of St. Philip's Church in Charleston.

gree of respectability; so that until the Revolutionary war it was customary for the more wealthy either to employ private tutors of respectable character in their families, or to send their sons to foreign universities. In one or the other of these ways, a large portion of the best scholars, and most eminent public characters in the State, were formed.

While CATESBY and GARDEN were cultivating Natural History in *Carolina*, this noble branch of science was by no means neglected in some of the other Provinces. PAUL DUDLEY, Esquire, of *Massachusetts*, at an early period of the century, made some valuable communications to the Royal Society of London, on zoological and botanical subjects. Lieutenant-Governor COLDEN,[r] of *New-York*, before-mentioned, was much devoted to the

[r] CADWALLADER COLDEN, Esquire, who has been repeatedly mentioned in former chapters, was born in Scotland, February 17, 1688. He was the son of a clergyman; and after having received the elements of a liberal education under the care of his father, he completed his studies at the University of Edinburgh, in 1705. He afterwards applied himself to the study of Medicine, and Mathematical Science, until the year 1708, when, allured by the fame of WILLIAM PENN's Colony, and by the invitation of a relative, he came over to Pennsylvania. There he engaged in the practice of physic, until the year 1715, when he returned to his native country. He staid, however, but a short time in Scotland; for the next year, after forming a matrimonial connection, he came a second time to America, where he spent the remainder of his days. In 1718 he removed to New-York, but soon afterwards relinquished the practice of Physic, and became, in succession, Surveyor-General of the Province, Master in Chancery, Member of the Council, and Lieutenant-Governor. In 1755 he retired with his family to *Coldingham*, his seat on the Hudson, where he spent the greater portion of his after life. Here he particularly devoted himself to Botanical studies, and to a correspondence with learned men in Europe and America. Both he and his Daughter, (also a great Botanist), corresponded with LINNÆUS, who, in honour of the latter, called a plant of the *Tetrandrous* class, *Coldenea*. This plant Miss COLDEN had first described. Dr. COLDEN died in 1776; his principal publications are, *Plantæ Coldinghamenses*, in the *Acta Upsalensia*, for 1743 and 1744. *Principles of Action in Matter*, &c. 4to. London, Dodsley, 1753. *The History of the Five Indian Nations*, two vols. 12mo. 1747, besides several smaller works on *Yellow Fever*, *On the Cure of the Cancer*, *On the Malignant Sore Throat*, &c. &c. He was undoubtedly a man of various and extensive learning, of respectable talents, and of great literary industry. See HARDIE's *Biography*, vol. ii. p. 131.

study of Botany, and made important contributions towards a knowledge of American plants; especially of that part of America which was in the vicinity of his residence. Mr. JOHN BARTRAM,[s] of *Pennsylvania*, was the first native American who conceived and carried into effect the plan of a Botanic Garden,[t] for the reception and cultivation of indigenous as well as exotic plants, and of travelling for the purpose of accomplishing this plan. He did much to explore the natural history of his native country. Dr. JOHN MITCHELL,[v]

[s] Mr JOHN BARTRAM was born near Darby, in Chester County, Pennsylvania, in the year 1701. His grandfather, of the same name, had come to the Colony in 1682, with the celebrated WILLIAM PENN. This self-taught genius early discovered a great thirst for the acquisition of knowledge, and especially of botanical knowledge. He travelled in pursuit of it with unwearied diligence, in various parts of his native country, from Canada to Florida, and made such proficiency in the study, that LINNÆUS is said to have pronounced him the "greatest natural botanist in the world." He corresponded with many of the most distinguished men of science, both in America and in Europe. He was elected a member of several of the most eminent Societies and Academies abroad; and was, at length, appointed Botanist to his *Britannic Majesty* GEORGE III. He died in 1777, in the seventy-sixth year of his age.

[t] It cannot be said, that Mr. BARTRAM formed a *Botanic Garden*, in the scientific sense of the expression; but he made a large and valuable collection of plants, on his farm near Philadelphia, which his sons have kept up to the present day.

[v] Dr. JOHN MITCHELL, who was mentioned in a former chapter, as having come from England to Virginia early in the last century, appears to have been a man of observation, acuteness, and enterprize, as well as of learning. His residence in Virginia was chiefly at *Urbanna*, a small town on the Rappahannock, about seventy-three miles from Richmond. He was a great Botanist, and seems to have paid particular attention to the *Hybrid* productions. He wrote an useful work on the general principles of Botany, and containing descriptions of a number of new genera of plants, which was published in 4to. in 1769. He also wrote, in 1743, an "*Essay on the Causes of the different Colours of People in different Climates*," which was sent over to Mr. COLLINSON, and published in the *Philosophical Transactions*, vol. xlii. p. 102—150. Besides these, he published an "*Essay on the Preparations and Uses of the various Kinds of Pot-Ash*." *Philosophical Transactions*, vol. xlv. p. 541—563; and a "*Letter concerning the Force of Electrical Coburation*." *Philosophical Transactions*, vol. li. p. 390. See *Pulteney's Sketches of the Progress of Botany*, &c. vol. ii. p. 278, &c. It is believed the same man was the author of the *Map of North-America*, published in 1755, which he accompanied with a large Pamphlet, entitled, "*The Contest in America*," and soon followed by another Pamphlet, entitled, "*The Present State of Great-Britain and North-America*." 1767. See *American Husbandry*, &c. vol. i. p. 283.

who resided some time in *Virginia*, and Dr. JOHN CLAYTON,[u] a native of that country, both rendered important services in investigating the botanical treasures of America. To several of these the lovers of natural history owe a large debt of gratitude; nor can any one take the most superficial view of the progress of science in America without immediately recognizing the extent and the utility of their labours.

The controversy respecting the introduction and support of *Bishops* of the Episcopal Church, in the American Colonies, may be considered as forming an important epocha in the literary history of our country. Every inquiry which induces men of learning and talents to write, and which contributes to form good writers, deserves to be considered as an era in the progress of literature. The controversy above-mentioned was certainly useful in both these respects. It called into action latent talents, and by rousing the public attention, and interesting the feelings of some of the most learned men in the country, it gave rise to a number of publications, and, no doubt, extended the taste for inquiry and reading. In this controversy, the principal writers were Dr. JONATHAN MAYHEW,[w] Dr. CHARLES CHAUNCEY,[x]

u Dr. JOHN CLAYTON was a native of Virginia, and devoted a long life to the investigation of its botanical riches. He was a private country gentleman, of moderate fortune, and greatly respected by all who knew him. He resided in Gloucester County, about eighteen or twenty miles from the city of Williamsburgh. CLAYTON'S work appears to have been first printed under the following title; "*Flora Virginica: Numeri Plantarum in Virginia Observatarum*, â JOHANNE CLAYTONO." 8vo. 1739—1743. It was afterwards published under this title: JOH. FRED. GRONOVII, *Flora Virginica, exhibens Plantas quas* J. CLAYTONUS *observavit, collegit et obtulit, &c. Ludg. Bat.* 4to. 1762.

w Dr. MAYHEW was pastor of the West Church in Boston. He was a man of distinguished learning and talents. His principal work on this subject was written in 1764.

x Dr. CHARLES CHAUNCEY was born in Boston, in the year 1705, graduated at Harvard College in 1721; was installed pastor of the First Church in Boston in 1727; in which station he continued till 1787; when he was removed by death. Dr. CHAUNCEY was descended from the celebrated man of the same name, who, in the days of Archbishop LAUD,

Mr. East Apthorp,[a] and Dr Henry Caner, of Massachusetts; Dr. Samuel Johnson, Dr. Samuel Seabury,[a] Rev. Mr. Hobart, Dr. Welles,[a] and Mr. Beach, of Connecticut; William Livingston,[b] Esq. and Dr. Myles Cooper,[c] of New-

came to New-England, became President of Harvard College, and was much celebrated for his erudition, and especially for his acquaintance with Oriental literature. His descendant, of whom we are speaking, was also a man of strong mind, and extensive learning, and eminently distinguished for his firmness and integrity. Besides several things which he wrote on the American Episcopate, he published a treatise on *The Benevolence of the Deity*. 1784. Five *Dissertations on the Fall and its Consequences*. 1785. And a work, entitled, *The Salvation of all Men*. 1785.

a The Rev. East Apthorp was, for a considerable time, the Rector of an Episcopal Church in Cambridge, near Boston. He left America in the course of the revolutionary war. Besides what he published in his own country, he has made at least one publication since he resided in England, on the deistical controversy, which is an honourable testimony both of his learning and talents.

a The Rev Samuel Seabury was Rector of an Episcopal church at New-London, in Connecticut, where he held a station among his clerical brethren of high respectability and influence. He was afterwards Bishop of the Episcopal Church in that State; and was the first of this order that ever resided in America. Besides smaller tracts, he published, during his life, two volumes of *Sermons*, which show him to have possessed a vigorous and well informed mind. A supplementary volume of Sermons, selected from his manuscripts, was published in 1798, two or three years after his death.

a The Rev. Mr Hobart, and the Rev. Dr. Welles, were Congregational ministers of great distinction in Connecticut, the former residing at Fairfield, and the latter at Stamford. They both took an active part in the controversy respecting the American Episcopate, and wrote ably on the subject. The Rev. Mr. Beach was an Episcopal clergyman, and was considered by those who espoused the cause, in support of which he embarked, as a respectable advocate of his Church.

b William Livingston, L.L.D. was a member of a family which emigrated from North-Britain, and which has, for more than a century, held a respectable and important station in New-York. He was born about the year 1723, and graduated at Yale College in 1741. After sustaining some important offices in New-York, his native State, he removed into New-Jersey, and was the first Governor of that State after the declaration of Independence. He continued to fill this office with great honour to himself, and with great usefulness to the State, till the time of his death in 1790. Mr Livingston made a variety of publications, besides those which related to the question of an American Episcopate, all of which indicate genius, taste, and learning. He was possessed of uncommon strength, discrimination, and variety of mind. Proposals have been lately made for publishing his works in several volumes.

c The Rev. Myles Cooper was a native of England, and received his education at the University of Oxford. He succeeded Dr. Samuel Johnson, as President of *King's College*, which office he held a number of years. He maintained a literary character of considerable eminence.

York; Dr. CHANDLER, of New-Jersey; Dr. WILLIAM SMITH, of Pennsylvania; and Mr. BOUCHER, of Maryland. From the middle of the century, to the commencement of the revolutionary war, this subject engaged much attention, and employed many pens in the American Colonies.[d]

The establishment of the *Medical School* in Philadelphia[e] forms an important era in the progress of American science. Before this time, there were no means of completing a regular medical education in the American Colonies, and all who wished to obtain such an education, were under the necessity of going to Europe for the purpose. Hence, when the plan of a medical school was formed in Philadelphia, it became an object of peculiar importance and interest in the view of all who wished well to the improvement of the country. The plan was formed by Dr. WILLIAM SHIPPEN, and Dr. JOHN MORGAN, both natives of Pennsylvania, and began to be executed in the year 1764. In that year Dr. SHIPPEN gave the first course of lectures upon Anatomy that was ever delivered in America. In 1765, Dr. MORGAN began to give a course of public instruction on the Institutes of Medicine. In 1768, Dr. ADAM KUHN, also a native of Pennsylvania, and a favourite pupil of the celebrated LINNÆUS, commenced a system of lectures on Botany and Materia Medica; and in 1769, Dr. BENJAMIN RUSH, who had just returned from the University of Edinburgh, began to lecture on Chemistry. These lectures, which were delivered by the aforesaid gentlemen, as Professors of the College of Philadelphia, were all of them the first attempts of the kind which had been

d The Rev. Drs. RODGERS, MASON, LAIDLIE, and INGLIS, all of New-York, also wrote and published on the subject of the American Episcopate, but less formally and extensively than the persons mentioned above.

e See vol. i. p. 320.

made upon any regular plan, on this side of the Atlantic. The medical school, thus formed, soon became an object of public attention; was resorted to by pupils from different parts of the then Colonies; has been since gradually increasing; and, at present, not only holds the first rank among similar institutions in the United States, but will bear a very honourable comparison with some of the best medical seminaries in Europe.

In 1767, an attempt was also made to establish a medical school in *King's College*, in the city of New-York.[f] Professors were appointed by the Governors of that institution, to teach the various branches of medical science; and a few courses of lectures were given; but the design was not pursued with so much success as in Pennsylvania; it was wholly set aside by the revolutionary war, and did not revive again to any purpose, until the year 1792, when it was established on a new and better foundation, as was stated in another place, and now holds the second rank among the medical schools of the United States.

The institution of the *Philosophical Society* in Philadelphia, also deserves to be noticed among the events favourable to the progress of knowledge in America, which took place about this time. Dr. BENJAMIN FRANKLIN was the father of this institution; but he was ably assisted and supported in his exertions for its establishment, by the Rev. Drs. EWING and SMITH, by the medical and other Professors of the College of Philadelphia, and by a number of the friends to literature and science, then residing in that city. The Association was organized in 1769; and none who are acquainted with the progress of science in America need to be informed, that it has been

[f] See vol. i. p. 321.

signally useful in exciting a thirst for knowledge in our country, in calling into view scientific acquirements which were before hidden; and in producing a laudable emulation, not only among its members, but also among other friends of learning in the remotest parts of the United States.[g]

The *Transit of Venus*, as it happened in the year 1769, gave occasion to the exertion and developement of a considerable portion of that mathematical and astronomical skill which existed in our country, but had hitherto been little displayed. This phenomenon attracted much attention in the American Colonies; great preparations were made for observing it; and the observations published by several philosophers on this side the Atlantic, were considered in Europe as highly honourable to themselves, and useful to the cause of science. The talents displayed on this occasion by the Rev. Dr. JOHN EWING,[h] Dr. DAVID RIT-

g This Institution, in 1771, consisted of about two hundred and fifty-five members. Of these, one hundred and fifty-seven were inhabitants of Pennsylvania; ten of Massachusetts; two of Rhode-Island; four of Connecticut; eleven of New-York; eleven of New-Jersey; three of Delaware; five of Maryland; four of Virginia; five of South-Carolina; one of Georgia; ten of the West-India Islands, and twenty-five of Europe.

h The Rev. JOHN EWING, D. D. was born in East-Nottingham, in Maryland, June 22, 1732. His classical studies were begun under Dr. ALLISON, at New-London. He afterwards went to the College of New-Jersey, where he graduated in 1755. In 1759, he received a call to take the pastoral charge of the first Presbyterian Church in the city of Philadelphia, which he accepted, and remained in this station during the whole of his after life. In 1773 he went to Great-Britain and Ireland, on a mission to solicit benefactions for the Academy at New-Ark, in Delaware, which was before-mentioned. During this visit, he formed an acquaintance with some of the most distinguished characters in those countries, and maintained a correspondence with them long afterwards. In 1779 he was chosen Provost of the University of Pennsylvania, which office, as well as his pastoral charge, he retained till his death. In all the branches of science usually taught in Seminaries of learning, more particularly in Mathematics, Astronomy, and every branch of Natural Philosophy; in the Latin, Greek, and Hebrew languages, and in Logic, Metaphysics, and Moral Philosophy, he was probably one of the most accurate and profound scholars which his country can boast of having reared. He died in 1802, in the seventy-first year of his age, after having held, for near half a century, a distinguished place among the literati of America. Those who wish to receive more particular infor-

TENHOUSE,[i] the Rev. Dr. SMITH, Dr. HUGH WILLIAMSON, and several others, of Pennsylvania; by Mr. BENJAMIN WEST, of Rhode-Island; by Professor WINTHROP,[j] of Massachusetts; and by some other American Astronomers, are too well known

mation concerning the life, accomplishments, and publications of this great man, will be gratified with the perusal of a *Discourse delivered on occasion of his Death*, by the Rev. JOHN BLAIR LINN, D. D. a comprehensive and eloquent eulogium, which does honour to the Author, as well as to the Object of his panegyric

i DAVID RITTENHOUSE, LL.D F R S. was born at Germantown, near Philadelphia, April 8, 1732. He was not favoured with a regular Academic education, but he was endued with a genius which rose above all difficulties, and which soon entitled him to a place among the most distinguished ornaments of his country. He early discovered a fondness for Mathematical and Astronomical inquiries, and was indulged by his parents in learning the trade of a clock and mathematical instrument-maker, in which he was his own instructor. While he resided with his father, in the country, he made himself master of NEWTON's *Principia*, which he read in the translation of Mr MOTTE. Here, likewise, he became acquainted with the science of *Fluxions*, of which sublime invention, he believed himself, for a time, to be the author The first occasion on which his knowledge of Mathematics and Astronomy was signally displayed, was in observing the *Transit of Venus*, in 1769, when he discovered a mind familiar with the most abstruse and complicated investigations It was in this retirement, also, that he planned and executed his far-famed *Orrery*, in which he represented the revolutions of the heavenly bodies, in a manner more complete and comprehensive than any former astronomer After this, his talents were displayed on various public occasions, and were admired and celebrated, not only throughout his own country, but among the philosophers of Europe. Dr RITTENHOUSE, on account of that modesty for which he was always remarkable, published but little. An *Oration* delivered before the *Philosophical Society* in 1775, and a few Memoirs on Mathematical and Astronomical subjects, contained in the first three volumes of the *Transactions* of that body, form the whole list of his publications. He was loaded with honours, both by the State, and by literary and scientific institutions. He was chosen President of the Philosophical Society in 1791; and was annually re-elected to this office till his death in 1796. See Dr. RUSH's *Eulogium*.

j JOHN WINTHROP, LL. D. F.R.S. was born in Boston, in 1714, and educated at Harvard College, where he received his first degree in 1732. In 1738 he was appointed Hollis Professor of Mathematics and Natural Philosophy in the College in which he was educated. He immediately entered on the duties of this office, which he executed with great ability and reputation till his death in 1779. He was a man of general and profound learning, but particularly so in the branches of science which he undertook to teach. His work, *De Cometis*, does him great honour. That he was known and respected among the philosophers of Europe, is evident from his being elected a member of the *Royal Society*; an honour which had been conferred on a native of Massachusetts only in one instance before, viz. in the case of the celebrated COTTON MATHER. *MS. Letter of the Rev. Dr. ELLIOT to the author.*

to render any particular details on the subject necessary here.

In 1769, a College was founded in the town of Hanover, in New-Hampshire. Of this Institution, the Rev. Dr. ELEAZER WHEELOCK was the founder; and the Earl of DARTMOUTH being one of its most liberal benefactors, it was called after him, *Dartmouth College*. Dr. WHEELOCK had been, for some years previous to that above-mentioned, the conductor of a Charity School, at Lebanon, in Connecticut, which was principally intended for the instruction of Indian youth.[k] About that time, it being found that the School, on its original narrow establishment, was not sufficient to answer the purposes which its friends had in view, a royal Charter was obtained, constituting a College, and naming Dr. WHEELOCK as the first President, with the privilege of nominating his successor in his last will. The Charity School, together with the newly constituted College, was removed to Hanover, in New-Hampshire, where both have been ever since fixed. And though neither of them flourished during the revolutionary war, which soon succeeded, yet, since the restoration of peace, they have grown considerably; the College, in particular, having become, at the close of the century, a large, respectable, and thriving seminary.[l]

[k] The first Charity School erected in America for the instruction of the Indians, was at Stockbridge, in Massachusetts, by the Rev. JOHN SERGEANT, between the years 1740 and 1750. He had scarcely gotten his plan into operation, before he was removed by death. The design was revived by the Rev. ELEAZER WHEELOCK, who solicited and obtained donations for the purpose, both in Europe and America; and opened a School at Lebanon, which was called after the name of Mr. JOSHUA MOOR, who was the largest benefactor to the institution. When *Dartmouth College* was founded at Hanover, this School was removed thither, where it has ever since continued, connected with the College, but distinct as to its property, design, and government. Dr. E. WHEELOCK died in 1779, in the sixty-seventh year of his age, and was succeeded by his son, JOHN WHEELOCK, LL. D. who has ever since presided over the institution.

[l] Among the benefactors to this institution, besides King GEORGE III. Lord DARTMOUTH, the Countess of HUNTINGDON and several other per-

About this time we may date the establishment of a College at Providence, in Rhode-Island. This institution was erected by certain persons of influence of the Baptist denomination, and, among these, perhaps no individual so well deserves to be considered as its founder, as the Rev. Dr. MANNING,* the first President. The charter for this College was given in 1764. It was open for the reception of students the next year, at Warren. The first commencement was held in 1769; and in 1770, it was removed to the town of Providence, where a spacious building was erected for the reception of the students, and which is considered as the permanent seat of the institution. The charter of this College makes it necessary, that the President should be a Baptist, and indeed the institution has always been under the immediate government of this denomination of christians.

Between the years 1765 and 1772, a revolution took place in the taste of the students in Yale College. About this time, the study of the Mathematics, and of the Ancient Languages, began to decline, and that of Belles Lettres to be an object of more attention than before. This revolution was chiefly produced by the Rev. Dr. DWIGHT, who has since held so conspicuous a place among the poets and divines of America; by Mr. JOHN TRUMBULL, who also stands in the first rank of our native poets; by the Rev. Mr. HOWE, afterwards a

sons of eminence in Europe, we find the names of Dr FRANKLIN, JOHN ADAMS, Esquire, late President of the United States, JOHN JAY, Esquire, late Chief Justice of the United States, and Governor of the State of New-York, and the Honourable JOHN PHILLIPS, of Exeter, in New-Hampshire.

* The Rev Dr MANNING was born in New-Jersey, in the year 1738 He was educated at Nassau-Hall, where he was admitted to the first honours of the College in 1762 In 1765 he removed to Warren, in Rhode Island, and there took charge of the College, to the Presidency of which he had been elected. In 1770 he removed, with that institution, to Providence, and was soon afterwards chosen pastor of the Baptist Church in that town. In this situation he remained till his death, which took place in 1791.

respectable clergyman, and by some others, their contemporaries. These gentlemen, being instructors in the College at this time; and having imbibed a more predominant taste for polite literature than had been common among their predecessors; encouraged among the students, both by precept and example, a new degree of attention to the best writers in their own language, and to the graces of composition. The change, however, was carried to a greater length than its enlightened authors intended or approved. Designing only to raise the study of polite literature to its proper station, it soon began to usurp the place of the more abstruse sciences, and of the ancient languages; which, though still studied with considerable care, have, perhaps, never since regained their former important station in that seminary.

The arrival of Dr. WITHERSPOON[n] in America, from North-Britain, is entitled to notice among the events which contributed to the advancement of literature and science in our country. It is not to be supposed, that a mind, so vigorous, enlightened, and active as his, and placed in a conspicuous station, could fail of contributing to

n Dr. JOHN WITHERSPOON was born at Yester, near Edinburgh, February 5, 1722. After being settled in the Gospel ministry, for upwards of twenty years, in North-Britain, he came to America in 1768, and continued to preside over the College of New-Jersey from that time till his death in 1794. Whether we consider Dr. WITHERSPOON as a Divine, a Statesman, or the Head of a literary institution, his talents and usefulness present themselves in a very conspicuous light. Scarcely any man of the age had a more vigorous mind, or a more sound practical understanding; and though many have had more learning, yet a mass of information better selected, or more thoroughly digested, than that which he possessed, is rarely to be found. See an excellent *Sermon* preached on the occasion of his death, by the Rev. Dr. RODGERS, of New-York, which contains a comprehensive and ably drawn character of the deceased. Though the largest and most valuable part of Dr. WITHERSPOON's writings was published before he left Britain, yet he wrote and published much after his removal to America. Mr. W. W. WOODWARD, of Philadelphia, has lately rendered important service to the cause of religion and literature, by collecting the whole of his works, and presenting two editions of them to the American public.

the literary advancement of any community in which he resided. Invited to undertake the office of President of the College of New-Jersey, this great man arrived at Princeton in the year 1768, and immediately entered on the duties of his new station. He produced an important revolution in the system of education adopted in this seminary. He extended the study of Mathematical science, and introduced into the course of instruction on Natural Philosophy, many improvements which had been little known in most of the American Colleges, and particularly in that institution. He placed the plan of instruction in Moral Philosophy on a new and improved basis; and was, it is believed, the first man who taught, in America, the substance of those doctrines of the philosophy of the Human Mind, which Dr. Reid afterwards developed with so much success. And finally, under his presidency, more attention began to be paid than before to the principles of taste and composition, and to the study of elegant literature.

About the same time the study of the Physical Sciences received new encouragement in Virginia. Hitherto comparatively small attention had been paid to Natural Philosophy in the College of William and Mary; or not more than reading some common treatise on this subject, with a very inadequate degree of attention or understanding. In 1768 a valuable, though not very extensive Philosophical Apparatus was imported from London, for the use of that institution; and in 1774 the first regular course of lectures on the subject was delivered by the Rev. Dr. Madison, since President of the College, and Bishop of the Protestant Episcopal Church in Virginia, whose services in the promotion of literature and science in that State are generally known. Since that time, natural philosophy has been almost con-

stantly growing in the number of its votaries, and in the degree of attention which it has received.

The attention which was paid to this College by Lord BOTETOURT, one of the last Governors of Virginia, while a British Colony, deserves to be noticed here, as honourable to himself, and as useful to the institution. His exertions to promote its interests were zealous and unremitted.[o] Among other things, he instituted an annual contest among the students, for two elegant gold medals, of the value of five guineas; one for the best Latin oration on a given subject; the other for superiority in Mathematical science. And though the useful effects of his exertions were rendered in a great measure abortive, by the scenes of war and confusion which soon followed, yet they were by no means without their value.

About the year 1774, another College was founded in Virginia. It was for some time nothing more than a respectable Academy; but after a few years assumed the name, and became invested with the powers of a College. The Rev. SAMUEL S. SMITH, now President of the College of New-Jersey, and whose literary eminence is well known, may be considered as the founder of this institution. It is called *Hampden Sidney College*, and has been useful in training up a number of good scholars; but is not now considered as in a very flourishing situation.

But among the various remarkable periods in the progress of American Literature, there are few more worthy of our notice than the American Revolution; a grand struggle, which both awakened

o Lord BOTETOURT made a point, for a long time, of sanctioning, by his presence, morning and evening prayers in the College. No company, no avocations, prevented his attendance on this service. This nobleman was extremely fond of literary characters. No one of this class, who had the least claims to respect, was ever presented to him whom he did not foster and encourage.

and produced talents; and which, by giving birth to many publications, served to impart new vigour to minds little distinguished before, and to improve the public taste. Hence it is a fact, that the style in which the Petitions and Remonstrances of the American Congress, at that time, and other political writings of the day, were drawn up, excited surprize in Europe, and gave new elevation to the literary character of our country.

Among those who distinguished themselves at this period by their publications, relating to the great political contest which divided America, we may enumerate JAMES OTIS, JOSIAH QUINCY, SAMUEL ADAMS, JOHN ADAMS, and THOMAS HUTCHINSON, of Massachusetts; WILLIAM LIVINGSTON, and JOHN WITHERSPOON, of New-Jersey; JOHN DICKINSON,[p] and JOSEPH GALLOWAY,[q] of Pennsylvania; DANIEL DULANEY,[r] of

[p] JOHN DICKINSON, Esq. who is a native of the State of Delaware, and at present resides in that State, received a considerable part of his education in Great-Britain, from which he had returned but a few years when the controversy between the Colonies and the Mother Country commenced. He wrote and published much on this controversy at different periods; but, perhaps, among the numerous and respectable publications which were made at this time, the *Farmer's Letters*, for dignity, eloquence, learning, and permanent reputation, ought to be considered as holding the first place. The eclat with which this work was received, the useful effects which it produced, and the public acknowledgments and honours, which have been since heaped upon the author, are too generally known to render it either necessary or proper to dwell on them here. A handsome edition of the *Works* of this illustrious American, in two volumes octavo, issued in 1801, from the press of Messrs. *Bonsal* and *Niles*, in Wilmington.

[q] JOSEPH GALLOWAY, Esq. is a native of the State of Delaware. He received a liberal education; and among other public honours conferred upon him, was a delegate to the American Congress from Pennsylvania, until the declaration of Independence, when he thought it his duty to oppose the measures adopted by that body, and to attach himself to the friends of the British government. He was a respectable writer in favour of the latter, and at an early period of the revolutionary war, went to England, where he still resides. Mr GALLOWAY has lately published a work on the subject of the *Prophecies*, which is spoken of with great respect, as indicating talents, learning, and piety.

[r] DANIEL DULANEY, Esq. was an eminent counsellor, who resided at Annapolis. He was considered as one of the most learned and accomplished men in his profession, that our country ever produced. He died at an early stage of the revolutionary war.

Maryland; RICHARD BLAND, ARTHUR LEE, ROBERT CARTER NICHOLAS, and THOMAS JEFFERSON, of Virginia; and WILLIAM HENRY DRAYTON,[s] of South-Carolina.[t] Besides these, a number of writers of smaller name embarked in the same cause, and contributed to the mass of inquiries and publications which the period produced. And though the distresses of the times served to derange and almost to destroy some important literary institutions; yet, during this period, seeds were sown which were destined soon afterwards to spring up and to bring forth fruit highly honourable to our country.

The revolutionary war was no sooner terminated by the peace of 1783, than the friends of literature began to feel more than ever the importance of encouraging institutions for diffusing useful knowledge among the people. Indeed, before the din of arms ceased to be heard, plans began to be formed, and in some instances to be executed, for the promotion of this object. The inhabitants of the American States now not only felt independent, in a political view, but they also began to cherish the wish for greater literary independence than they had heretofore enjoyed. The zeal and

[s] WILLIAM HENRY DRAYTON, Esq. a native of South-Carolina, was a political writer of considerable eminence. In 1774 he wrote a pamphlet, addressed to the American Congress, under the signature of *A Freeman*, in which he stated the grievances of America, and drew a bill of American Rights. Several other publications appeared from his pen, explaining the injured rights of his country, and encouraging his fellow-citizens to vindicate them. He also wrote an *History of the American Revolution*, brought down to the year 1779, in three large volumes, which he intended to correct and publish, but was prevented by death. He died in Philadelphia in 1779, while attending his duty in Congress, in the thirty-seventh year of his age.

[t] The author regrets, that it is not in his power to give a more complete catalogue of the writers on the American controversy. Many well written pamphlets on both sides of this question, were published anonymously. This was especially the case with those who wrote in favour of the British claims; so that out of the large number who belong to the latter class, only Lieutenant-Governor HUTCHINSON, and Mr. GALLOWAY, are sufficiently known to be particularly mentioned.

enterprize which had been directed against the common enemy were now turned towards domestic improvement.

In 1780 an act passed the Legislature of Massachusetts for establishing the *American Academy of Arts and Sciences.*[*] Its design was to promote every species of liberal knowledge that might tend to "advance the interest, honour and happiness of a free, independent and virtuous people." This institution soon rose into importance; and, from the character of its members, and of the publications which it has made, may be considered as among the most respectable and useful associations in the United States.

About this time three gentlemen of the name of PHILLIPS,[†] one residing at Andover, in Massachusetts, another at Exeter, in New-Hampshire, and a third in Boston, exercised a degree of munificence, which is equally rare, in this country, and honourable to their generosity and love of literature. In 1778 the Honourable SAMUEL PHILLIPS, of Andover, founded and liberally endowed an

[*] The Hon. JAMES BOWDOIN, afterwards Governor of the Commonwealth, and a man of taste and science, was the first President of the American Academy. He was also a liberal benefactor to the institution, and continued to preside over it with honour until his death, in 1790. Another conspicuous benefactor to this association was JOSIAH QUINCY, Esquire, a learned and eloquent counsellor, a distinguished patriot, and an able political writer. To these may be added, the Hon. JOHN ADAMS, late President of the United States, and now President of the Academy; and Dr. FRANKLIN, who also made important donations to the institution. But the greater part of the funds of the Academy consist of five thousand dollars, presented to it by our illustrious countryman Count RUMFORD, who, in 1796, made a donation of the above sum, the interest of which is to be applied and given once every second year, as a premium to the author of the most important discovery, or useful improvement, which shall be made known to the public in any part of the Continent of America, or in any of the American islands, during the preceding two years, on *Light* or on *Heat*.

[†] The family of PHILLIPS, in Massachusetts and New-Hampshire, has been long distinguished for its great wealth, and also, for its love of religion and literature. A complete history of the munificence exercised towards public institutions at different times, by the members of this family, would probably furnish an amount of benefactions seldom equalled in this country.

Academy in the town in which he resided. In this laudable undertaking he was aided by his brothers, the Honourable JOHN PHILLIPS, LL.D. of Exeter, and WILLIAM PHILLIPS, Esq. of Boston. Not long afterwards the former of these brothers founded, and very richly endowed an Academy at Exeter, the place of his residence. Both these academies are called by the name of the family to whom they owe their existence; both continue to grow in respectability and usefulness, and are likely long to remain monuments of the noble and distinguished public spirit which gave them birth.[w]

Immediately on the return of peace, a College was established in the town of Carlisle, in Pennsylvania. This institution received the name of *Dickinson College*, being called after the celebrated statesman and political writer, JOHN DICKINSON, Esq. who was its most liberal benefactor. Doctor RUSH also, and several other gentlemen of distinction in Pennsylvania, were among the most active friends and promoters of this establishment. Soon after the Charter for this College was obtained, the Rev. Dr. CHARLES NISBET, of Montrose, in Scotland, was called to be its President. He accepted the invitation, and in the year 1784 arrived in America. It is scarcely necessary to say, that the eminent talents, and profound and general learning of this gentleman, were considered as an important acquisition to the literary interests of our country, and that he soon contributed to raise the character of the institution. From this period to the close of the century he continued to preside over it with usefulness and honour.

Seminaries of learning began now to multiply rapidly. From the peace of 1783 to the close of 1800,

w In furnishing instances of individual liberality to public institutions, it is believed that Massachusetts exceeds all the other States.

there were *seventeen* Colleges founded in the United States, viz. two in Massachusetts, one in Vermont, one in New-York, two in Pennsylvania, four in Maryland, one in North-Carolina, three in South-Carolina, one in Georgia, one in Kentucky, and one in Tennessee. Besides these, Academies, during this period, were multiplied almost without number. Indeed, it may be questioned whether seminaries of the higher order have not been made so numerous in many parts of our country, as to produce effects directly the reverse of what were intended. It is as possible to have too many *colleges*, as it is to have too many *laws*, or too many *books*.

The institution of these academies was soon followed by the organization of a new Medical School attached to the University of Cambridge, in Massachusetts. This event took place in 1783, when the first Professors were appointed, and the first system of medical lectures delivered in that Commonwealth. The Governors of the University were enabled to effect this establishment by means of several generous donations, made for this particular purpose, by Dr. EZEKIEL HERSEY, an enlightened and opulent physician of Hingham; by his widow, a few years afterwards; by his brother, Dr. ABNER HERSEY, of Barnstable; by Dr. JOHN CUMMING, of Concord; and by WILLIAM ERVING, Esq. of Boston.[x] The several Professorships bear the names of their respective founders; and while they exhibit monuments of laudable beneficence,

x Dr. EZEKIAH HERSEY gave £. 1000 Massachusetts currency, to be applied to the support of a Professor of *Anatomy* and *Surgery*; his widow a like sum, for the same purpose; his brother, Dr. A. HERSEY, £. 500, for the encouragement and support of medical instruction; Dr. CUMMING, a like sum to be applied to the same object; and WILLIAM ERVING, Esq. £. 1000, to be devoted to the support of a Professorship of *Chemistry* and *Materia Medica*. These several sums, amounting to between 13000 and 14000 dollars, are funded, and their annual proceeds devoted to the objects directed by the donors.

have proved highly useful in the diffusion of science.[y]

In 1783 Mr. NOAH WEBSTER, of Connecticut, published the first part of his *Grammatical Institute of the English Language.*[z] This was soon followed by two other parts of the same work; by *Dissertations on the English Language*, and by several other publications from the same pen. The influence of this gentleman in promoting a taste for philological inquiries and good writing among his countrymen; the general introduction of his *Institute* into the schools of America; and the extensive utility of his learned labours, are well known, and are worthy of particular notice in tracing the literary history of our country.

The establishment of the Federal Government, in 1789, may be considered as the last grand epocha in the progress of knowledge in America. From this period public tranquillity and confidence began to rest on a foundation more solid than before; wealth flowed in on every side; the extension of our intercourse with Europe, the great seat of civilization, refinement and literature, rendered us every day more familiar with trans-atlantic productions and improvements; and a sense of national dignity and independence becoming gradually more strong and general, all conspired to furnish

y The author takes pleasure in acknowledging, in this place, his obligations to his friend, the Rev. Dr. ELIOT, of Boston, for a large portion of the information he is able to give respecting the literature of Massachusetts. From a mind so well stored on the subject of American antiquities, he might have drawn much more ample materials, had application been made early enough to admit of a leisurely attention to the object.

z This work was begun the autumn of 1782, and published in the spring of 1783, at Hartford. The success which has attended it, notwithstanding so many other Spelling Books and Grammars have solicited public favour since it appeared, at once does honour to the Author, and shows, that education is by no means neglected in America. At the beginning of the year 1801, more than *one million and an half* of copies of this work had been sold.

the means, and to excite an ambition for enriching our own country with the treasures of knowledge.

From this time till the end of the century, literary institutions of various kinds were multiplied with astonishing rapidity in the United States. Besides Colleges, Academies, and subordinate Schools, Scientific Associations were formed; Libraries began to be established in the most remote parts of the country; Printing Presses and Bookstores appeared in great numbers where they were never before known; Newspapers became numerous to a degree beyond all precedent; and the rewards of literary labour, though still too small, were considerably augmented. The establishment of the *Historical Society of Massachusetts*, in 1791; of the *Medical Schools* of New-Hampshire and Kentucky, in 1798; of the *Connecticut Academy of Arts and Sciences*, in 1799; and of the numerous *Medical* and *Agricultural Societies* in almost every part of the United States, within a few years past, deserve particular notice, and form interesting items in the annals of our literary progress.

At the beginning of the century there were *two* Colleges in the American Colonies. At the close of it there were *twenty-five;* from which it may be estimated that *four hundred* students are annually sent forth, with academic honours. At the beginning of the century the number of Academies was small; and even these were on a comparatively narrow plan, and were ill attended by students; but at the close of it, the number of these institutions had become so great, in almost every State in the Union, especially in the Eastern and Middle States, that it would be difficult to form a tolerably correct estimate of their number. At the commencement of the century there were but *two* public *Libraries* in the American Colonies: these belonged to Harvard College, and to the Province

of South-Carolina, and were very small.[a] Since that period the number has increased to *many hundreds*, and is every year becoming still greater.[b] Private Libraries have also become numerous and extensive in a still more remarkable degree.

At the commencement of the period under review, there were but *three* or *four Printers* in the American Colonies; and these carried on their business upon a very small scale, and in a very coarse, inelegant manner. But at present the number of Printers in the United States may be considered as near *three hundred;* and many of these perform their work with a neatness and elegance which are rarely exceeded in Europe. At that time the printing an original American work, even a small pamphlet, was a rare occurrence, and seriously weighed, as an important undertaking; while the reprinting of foreign works was seldom attempted. But now at least *one hundred* American works, some of which are large and respectable, annually issue from our presses; and the republication of foreign books is carried on in almost every part of our country, and particularly in the capital towns, with a degree of enterprize, and to an extent which would not disgrace some of the most cultivated parts of the European world.

Before the revolutionary war the *Booksellers* in the American Colonies were few, and carried on their business on a contracted plan. Since that time their number has increased more than *fifty fold;* and the extent of their annual sales, perhaps,

a In the seventeenth century, some of the Congregational Churches in Massachusetts began to form *Church Libraries.* These were considerably numerous and useful; and some of them remain till the present day. The use of these Libraries, however, was chiefly confined to the particular congregations whose property they were.

b The number of incorporated *Libraries* in Massachusetts is said to be about *one hundred.* The number in the other Eastern States is not known; but institutions of this kind are far more numerous in New-England than in any other part of our country.

in a still greater proportion.[c] Thirty years ago, he who undertook to dispose of a moderately large edition, even of a Spelling-book, considered himself as engaging in a hazardous enterprize. But in 1790, a single bookseller thought himself warranted in attempting an American edition of the *Encyclopædia Britannica*, in eighteen quarto volumes, and completely succeeded in making it a profitable undertaking.[d] And since the last-mentioned year, a number of works extending to many volumes have been carried through American presses, with great ease and readiness.

The first edition of the *Bible* ever printed in America was that by the Rev. JOHN ELIOT, the celebrated *Apostle* of the Indians, in the language of the *Naticks*. This monument of pious labour was first printed at Cambridge, in Massachusetts, in 1664, and a second edition at the same place sixteen years afterwards. From this period till near the close of the revolutionary war, at so low an ebb was the book-trade in our country, that we hear of no attempt to print an edition of the Bible on this side of the Atlantic. About the year 1781, Mr. ROBERT AITKEN, of Philadelphia, undertook to present the American public with a duodecimo edition of the Sacred Scriptures. This laudable undertaking was executed, but with great difficulty, arising from the peculiar situation of the country at that time.[e] But within the last eighteen or

c In 1802, the German plan of disposing of books by means of *Literary Fairs*, was adopted in the United States. The first Book-fair was held in New-York; and it is proposed, in future, to hold them statedly in that city. It is believed that Mr. MATHEW CAREY, a well informed and enterprizing bookseller of Philadelphia, was one of the first who suggested the propriety and utility of the undertaking, which has so far happily succeeded, and bids fair to be highly useful, both to the book-trade and to the cause of literature.

d The person here alluded to is Mr. THOMAS DOBSON, of Philadelphia, an intelligent and respectable bookseller, who has probably contributed as much as any individual in his line to the promotion of American literature.

e Immediately after the publication of this edition of the Bible, peace

twenty years, undertakings of this kind have become so numerous and so familiar, that the importation of Bibles for the supply of the American market, though not entirely, has in a great measure ceased. The first *quarto* edition of the Bible printed in the United States was in the year 1791, by Mr. ISAAC COLLINS, then residing at Trenton, in New-Jersey. In a few months afterwards, another quarto edition was published by Mr. ISAIAH THOMAS, of Worcester, in Massachusetts; who, in the same year, laid before the public the first *folio* edition of the Holy Scriptures that was printed in the United States. Since that time several folio editions of the Bible, and a number of quarto editions, have been printed in our country, and begin to be considered by our printers and booksellers as small and easy undertakings.

Those kinds of literary productions which have been most common and most successful in the United States, are *theological* and *political* works, and those intended for the use of *schools*. For the *first* we are indebted to that seriousness and taste for religious inquiry which prevails in New-England, and in a considerable, though less degree, in the Middle and Southern States. The almost universal taste for the *second* class of books we owe to the nature of our government, which is eminently calculated to foster, to bring forward, and to display political talents, and to excite the attention of every class of citizens to political inquiries. And the general encouragement given to productions of the last-mentioned kind arises from that disposition to attend to the education of children, which has long characterized the Eastern

took place, when it was soon found that Bibles could be imported from Great-Britain cheaper than it was possible to print them here. Mr. AITKEN, therefore, not obtaining a ready sale for his edition, which had been carried on with great difficulty, was nearly ruined by the undertaking.

States, and which, during the last ten years of the century under review, rapidly extended itself through every part of the Union.

The *School establishments* of New-England, especially in the States of Massachusetts and Connecticut,[f] though they took their rise in the seventeenth century, yet underwent such modifications, and received so many improvements in the eighteenth, that it would be improper to pass them without notice in this retrospect.[g] These establishments have been carried to such a degree of perfection, that in New-England, and particularly in the two States above-mentioned, scarcely an individual can be found, of either sex, who has not been instructed in reading, writing and arithmetic, and who does not habitually read more or less in newspapers, and a few of the best books on religion and morality. Attempts have been made in some of the Middle and Southern States to adopt similar plans of general education; but though much has been done, in several of these States, towards rendering the elements of English literature a boon within the reach of all classes in the community, yet, the habits of the people not being so favourable to the diffusion of knowledge, and their characters and manners being less homogeneous, they have made less progress towards maturing and perfecting their school establishments than the Eastern States.

f The *School* system of Connecticut is generally considered the most perfect in the United States. The parish Schools in that State amount to at least *twelve hundred*, containing, on an average, *forty Scholars* each, or *forty-eight thousand* in the whole. Next to that of Connecticut, in point of excellence, we may place the School system of Massachusetts. The number of Schools in that State is not known to the Author. He presumes, however, that it cannot be less than in Connecticut.

g The Author takes pleasure in acknowledging his obligation to NOAH WEBSTER, jun. Esquire, for some valuable information respecting the literature of Connecticut during the eighteenth century; and especially for a more satisfactory account of the School establishments in that State than he had before received.

It may not be improper to take notice of some of those branches of science and literature which have been most cultivated in the United States; and also of the names of those who have been principally distinguished by their attention to these objects.

In *Mathematics*, *Astronomy*, and the more abstruse departments of *Mechanical Philosophy*, our country has been distinguished to a degree which, all things considered, is highly honourable to American genius and diligence. The names of GREENWOOD, WINTHROP, BOWDOIN,[h] WILLARD, FOBES, and others of Massachusetts; of WEST, of Rhode-Island; of CLAP, and MANSFIELD, of Connecticut; of WILLIAM ALEXANDER, commonly called Lord STIRLING,[i] of New-Jersey; of GODFREY, RITTENHOUSE, EWING, WILLIAMSON, PATTERSON, and ELLICOTT, of Pennsylvania; and of MADISON, PAGE, and several more of Virginia, are so well and so respectably known, that it is unnecessary to enlarge on their merits.[j] Besides

h JAMES BOWDOIN, LL. D. F. R. S. was born in Boston, Massachusetts, August 18, 1727. His father was a native of France, and fled among the persecuted Protestants of that country, first to Ireland, and afterwards to New-England, where he arrived in the year 1688. His son James, the object of our present attention, was educated at Harvard College, where he received his first degree in 1745. After filling some important stations in public life, he was chosen Governor of Massachusetts in 1785 and 1786. He died in 1790, greatly and generally respected. Those who have perused the *Memoirs of the American Academy of Arts and Sciences*, will recollect the several papers contained in them, which manifest no common taste and talents in astronomical inquiries.

i WILLIAM ALEXANDER, Esq. was a native of the city of New-York, but spent a considerable part of his life in New-Jersey. He was considered, by many, as the rightful heir to the title and estate of an *Earldom* in Scotland, of which country his father was a native; and although when he went to North-Britain in pursuit of this inheritance, he failed of obtaining an acknowledgment of his claim by government; yet, among his friends and acquaintances, he received, by courtesy, the title of Lord STIRLING. He discovered an early fondness for the study of Mathematics and Astronomy, and attained great eminence in these sciences.

j The Author, in this list, has only introduced the names of such Mathematicians, Astronomers, &c. as, by means of some publication or other display of their learning and talents, appeared to him to have made themselves more than usually known. He is sensible that a number of the

the learning and talents of these native citizens, Lieutenant-Governor COLDEN, mentioned in several former chapters, and Professor MINTO,[i] both of North-Britain, deserve, among many others, to be mentioned with honour, as having contributed to the cultivation of mathematical and astronomical science in our country.

Chemical Philosophy has also been cultivated in the United States with a zeal and success worthy of respectful notice. The first course of instruction in Chemistry ever attempted in America, was in the year 1769, by Dr. BENJAMIN RUSH, about that time appointed Professor of this branch of science in the College of Philadelphia.—To Dr. SAMUEL L. MITCHILL, of New-York, the honour is due of having first publicly taught, in an American Seminary, the system of Chemistry digested and published by LAVOISIER and his associates. This was in a course of Lectures delivered by him in Columbia College, in the year 1792, as a Professor in that institution: and his various publications and numerous experiments on the subject, from that time to the present, have doubtless contributed to extend the taste for chemical inquiries. Dr. MITCHILL was soon followed by Dr. WOODHOUSE, of Philadelphia, Dr. MACLEAN, of Prince-

• Professors of these branches of knowledge in our Colleges, both native citizens and foreigners, stand high in the estimation of all who know them; and though not brought so immediately before the public, yet possess, perhaps, a degree of erudition and skill, little, if at all inferior to those possessed by the persons above named.

[i] WALTER MINTO, LL. D. was a native of Scotland, and received a liberal education in that country. Early in life he visited Italy, and spent a number of years at Pisa, pursuing, with great diligence, his mathematical and astronomical studies. Soon after the close of the revolutionary war, he came to America, and about the year 1787, was appointed Professor of *Mathematics and Natural Philosophy in the College of New-Jersey.* In this situation he was respected and useful. He was, beyond all doubt, a great Mathematician and Astronomer, as appears from his *Researches into some Parts of the Theory of the Planets*, &c. 8vo. London, 1783; and also from his *Oration on the Progress and Importance of the Mathematical Sciences*, &c. 1788. He died about the year 1796.

ton, Dr. DEXTER, of Cambridge, and, in a few years afterwards, by several others, in different parts of the continent. This department of physical science is much more studied in the Middle and Southern States than in New-England.

The arrival of Dr. PRIESTLEY in the United States gave a spring to the study of Chemistry on this side of the Atlantic. This celebrated Philosopher possesses an ardour and activity of mind, which are eminently fitted to influence those with whom he has any intercourse, and to draw the public attention to the objects which he pursues. And although he still adheres to a system of doctrines which a great majority of Chemists consider as erroneous, yet his numerous experiments and publications on the subject since he has resided in the United States, have contributed to excite a spirit of inquiry, and to improve the public taste for chemical philosophy.

The votaries of *Natural History* in the United States, though not numerous, are respectable, and have rendered important services to this branch of science. Besides those of this class whose names were mentioned in preceding pages, a few others are entitled to particular notice. The Rev. Dr. CUTLER, Mr. PECK, and Dr. WATERHOUSE, of Massachusetts; Dr. MITCHILL, of New-York; the Rev. Dr. MUHLENBERG, and Mr. MARSHALL, of Pennsylvania; and Mr. WALTER,[1] of South-Carolina, are all advantageously known by their publications on different branches of Natural History. But, among the natural historians now living in

[1] THOMAS WALTER was a native of England, a man of liberal education, and much devoted to Botany. He settled in South-Carolina, a few miles from the city of Charleston, where he resided a number of years as a planter, and where he died towards the close of the eighteenth century. He published his *Flora Caroliniana* in 1788. He introduced a new species of grass, from which much was expected; but it did not stand the test of time.

the United States, Professor BARTON, of Philadelphia, undoubtedly holds the first rank. His various works evince a closeness of observation, an accuracy of inquiry, an extent of learning, and a vigour and comprehensiveness of mind, which are equally honourable to their possessor, and to his country. Should his life and health be spared, he bids fair to attain a place among the most accomplished scientific naturalists of the nineteenth century.

In the science of *Medicine*, our country has presented specimens of learning and talents of the most honourable kind. It may be questioned whether this science is cultivated more zealously or more successfully in any part of the world than in America; or whether any Medical School in Europe furnishes, on the whole, greater advantages to the student than that of Philadelphia.[m] The spring which was given to the study of medicine within the last ten years of the eighteenth century, in the United States, deserves to be noticed as very remarkable. This was effected, not only by the writings of several distinguished American Physicians, among whom Dr. RUSH holds the first place, and to whom Medical Science on this side of the Atlantic owes a large debt of gratitude; but also, and perhaps more especially, by the unprecedented frequency with which our country has been visited, during this time, by *pestilential diseases*, which have roused the attention and called forth the talents of our Physicians, and led to investigations, to

m It is not contended, that the advantages to be enjoyed in the medical school at Philadelphia are equal to those furnished by the clinical lectures and practice, in the numerous and large *Hospitals* of London, and the still more numerous courses of *Lectures*, delivered by private instructors in that city. It is only meant to be asserted, that no regular medical school, connected with any University of Europe, offers to the student better means of medical instruction than those which may be enjoyed in Philadelphia.

an interchange of opinions, and to a publication of the results of their inquiries, which were never so general before.

In the *Mechanic Arts*, so far as respects the ingenuity of individuals, and the important service rendered by numerous inventions and improvements, America yields to no nation under heaven. Perhaps, considering the amount of our population, and the peculiar circumstances of our people, we have furnished even a greater number of these inventions and improvements than our just proportion. On this subject, as it would be difficult to enter into details without exceeding all convenient limits; so there can be no doubt that a number of instances, abundantly sufficient to support the assertion here made, will readily occur to every reader. The *Quadrant*, by GODFREY; the *Orrery*, by RITTENHOUSE; the Machinery for manufacturing *Cards*, by WHITTEMORE; and that for manufacturing *Fire-arms*, by WHITNEY, form but a very small number of the large list that might be presented.

Of talents in the *Fine Arts*, America has been less productive. But we have satisfactory evidence that this arises not so much from the want of native genius, as from the want of cultivation and encouragement of the genius we possess. The names of WEST, TRUMBULL, COPELY, and STUART, are more than sufficient to rescue their country from any imputations of deficiency on this head.

When we pass on to *Theology*, the noblest and most important of all sciences, it will be found, that, on this subject, America may claim high distinction. To omit many names of less note, the theological writings of President EDWARDS, and of the Rev. Dr. HOPKINS, have excited much attention in the religious world. The former, in particular, deserves, perhaps, to be considered as

one of the greatest divines that ever lived. Besides many Tracts of high reputation, on detached points of theology, and which have been well received, not only in America, but also in Europe; a number of volumes of *Sermons* have been produced by our countrymen, which show, that the eloquence of the pulpit is by no means neglected. The first volume of Sermons ever published in America, that had any just claim to correctness and elegance of style, was printed in Boston, in the year 1727, by EBENEZER PEMBERTON, pastor of a Church in that town. Since that time, the collections of Sermons, by President DAVIES,[n] Dr. LATHROP, Dr. SEABURY, President SMITH, Dr. LINN, Dr. STRONG, Dr. CLARKE, Dr. EMMONS, and several others, of different kinds and degrees of merit, have received much public approbation.[o]

In the *Philosophy of the Human Mind*, the eighteenth century did not produce a greater effort of genius, than the *Treatise on the Will*, by President

n Rev. SAMUEL DAVIES was born in the County of Newcastle, in the State of Delaware, November 3, 1724. He received the greater part of his academic and theological education under the care of the Rev. Mr. SAMUEL BLAIR, of Fog's Manor, in Pennsylvania, and was licensed to preach the gospel, by the Presbytery of Newcastle, about the year 1746. Soon after this event, he travelled into Virginia, where he settled in the ministry, in Hanover County, and remained there in an extensive sphere of usefulness, and highly respected for a number of years. In 1753, he was chosen by the Synod of New-York, at the solicitation of the Trustees of New-Jersey College, to accompany the Rev. GILBERT TENNENT on a mission to Great-Britain and Ireland, to solicit benefactions for said College. In 1759, he was elected to succeed Mr EDWARDS in the Presidency of that institution. In this station he remained but eighteen months, being removed by death in January, 1761, in the thirty-seventh year of his age. The genius, taste, learning, and eminent piety of President DAVIES, have been so much celebrated, that it is unnecessary to dwell on them here. His *Sermons*, in three volumes, were first published in 1765. Their uncommon merit is well known. They have undergone a number of impressions.

o Besides the more formal volumes of Sermons above mentioned, it would be easy to select smaller collections of discourses on particular subjects, which do honour to the genius, learning, and taste of their respective authors; and the single Sermons of merit are much more numerous; but it is obviously impossible to indulge such minute details, consistently with the requisite brevity.

EDWARDS. And perhaps it may be asserted, that within the last thirty years a fondness for metaphysical subtleties and refined speculations has remarkably characterized the theological publications, particularly in the Eastern States of America.

In *Classic Literature*, the United States have given birth to little that can be deemed remarkable. The first translation of a classic author ever made and published in America was by JAMES LOGAN, several times before mentioned, who, in 1744, published a version of CICERO's treatise *De Senectute*, with explanatory notes. Since that time several works of a similar kind have been executed in the United States. Among many others who might be mentioned as distinguished for their classic learning and taste, it would be improper to omit the name of CHARLES THOMSON, Esq.[p] late Secretary of the American Congress. The erudition and skill of this gentleman, especially in Greek literature, do honour to our country. He has completed a translation of the *Septuagint* version of the Old Testament Scriptures, and of the Original of the New Testament, which the friends of Biblical literature in America hope soon to see published; and which, in the opinion of good judges, will be a valuable acquisition to sacred criticism.

Of *Oriental Literature*, the votaries in America have been few, and of the fruits of their erudition little has been laid before the public. With regard, indeed, both to Classic and Oriental literature, our country has rather lost than gained ground within the last hundred years. For though a greater number of persons now gain a smattering of classic literature than at the beginning of the century; yet of

[p] This gentleman received the rudiments of his education at the Academy of Dr. FRANCIS ALLISON, before mentioned, where he was associated in study with Dr. EWING, Governor M'KEAN, and a number of other Americans of literary distinction.

those who pay attention to this study, much fewer are deeply and thoroughly instructed. And with respect to Oriental learning, those who have any tolerable acquaintance with it in the United States are rare indeed. To the names of those Americans mentioned in former parts of this work, who were distinguished by their knowledge of the Hebrew language, that of the Rev. Dr. STILES, President of Yale College, may be added. At the time of his death, he probably left no superior among his countrymen in this branch of literature.[q]

It has been asserted, and probably with truth, that in *Political science*, and in *Parliamentary eloquence*, the United States will bear a very honourable comparison with any nation. Besides the eminent political writers mentioned in a former page, the names of ADAMS, HAMILTON, MADISON, JAY, and several other native citizens, are known and celebrated in Europe. In addition to these, many Counsellors and Juridical characters might be enumerated, who not only hold a high station among ourselves, but who would also be considered as ornaments of the bar and the bench, in the most enlightened countries of Europe.

The *Historians* of America were enumerated

q EZRA STILES, D. D. and LL. D. was born at North-Haven, in Connecticut, December 10, 1727. He was educated at Yale College, where he received the degree of A. B. in the year 1746. He was ordained to the work of the Gospel ministry, and installed Pastor of a Church at Newport, Rhode-Island, in 1755; and was chosen President of the College at which he had received his education in 1777; in which important office he continued till his death, in 1795. Dr. STILES was one of the most learned men that our country ever produced. He had a great amount of general knowledge, but he was particularly attached to Oriental literature. Besides an acquaintance with the Hebrew language more than commonly extensive and profound, very few on this side of the Atlantic ever made so great progress in the knowledge of the Arabic, Chaldaic, Syriac, and Samaritan dialects; and on the Persic and Coptic he had bestowed some attention. He corresponded with learned *Rabbis* in the Hebrew language, and revived the study of it in the College over which he presided. For upwards of thirty years he held a distinguished place among the active friends and promoters of literature in the United States.

in a former chapter, and some references made to their respective merits.[r] None of them, indeed, can boast of having attained that elaborate polish, and that exquisite felicity of manner which distinguish the first class of English historians. But the most of them are respectable writers; and several have acquitted themselves in a manner which does credit to their taste in composition, as well as to their fidelity in collecting and communicating information.[s]

The respectable *Poets* of America are not numerous. The most conspicuous of these were noticed in a preceding division of this work.[t] It is not necessary here to repeat their names, or to attempt a comparative estimate of their merits. Their number is gradually increasing;[v] and when that leisure and encouragement shall be afforded to men of genius in this country, which are enjoyed in many parts of Europe, we may expect to produce Poets, who shall vie with the most celebrated of the old world.

But in no respect does the literary enterprize of America appear more conspicuous than in the rapid increase of the number and circulation of *Newspapers*, within the last thirty years. The ratio and amount of this increase were stated in another

r See page 140, &c. of the present volume.

s Histories of different American States have been promised by several writers. The public, particularly, look forward with high expectation to the appearance of *The History of North-Carolina*, which has been for some time prepared by Dr. HUGH WILLIAMSON, whose talents and learning are a pledge that it will prove an interesting and instructive work.

t See pages 230 and 231 of this volume.

v Since the close of the eighteenth century, another writer has appeared, who, if we may judge by his first production, is destined to hold a high place in the catalogue of native Poets of America. This writer is the Rev. JOHN B. LINN, D. D. of Philadelphia, whose *Powers of Genius*, a didactic and descriptive Poem, published in 1801, displays imagination, taste, and reading. This Poem was so favourably received, that a second edition was called for in less than a year, into which the Author has introduced large and valuable improvements.

place."[u] In this respect we go beyond every other nation. It were well if these vehicles of information had improved as much in purity, intelligence, and instructiveness, as in other respects; but the blindest partiality for American literature must perceive and lament the sad reverse!

It may not be improper to attempt, in a few sentences, a comparative estimate of the extent to which different branches of knowledge are cultivated in different parts of the United States.

That amount of knowledge which is usually acquired at common schools, viz. reading, writing, and arithmetic, is more generally diffused among all classes of the people in New-England, and particularly in Massachusetts and Connecticut, than in any other portion of our country, and indeed than in any other part of the globe. This may be ascribed to the superior excellence of their School establishments; to the number, piety, and diligence of the Clergy; to the regular organization of their towns and parishes; to the honourable point of light in which the instructors of youth are considered;[w] and to the general spirit of activity and enterprize which must be admitted to enter into the national character of New-England.

It may also be observed, as another circumstance of discrimination, that in the Eastern States a larger portion of the youth pass through a regular collegiate course of education, than in any other

u See pages 250 and 251 of the present volume.

w This circumstance has a most benign influence in New-England. In the Middle, but more especially in the Southern States, the employment of a *Schoolmaster* is considered by many as rather degrading, and has sometimes been used as a ground of reproach. The consequence is, that too many of the instructors of youth in these States are ignorant and vicious adventurers; those who are well qualified rather shunning an office to which so little respect is attached. In the New-England States it is otherwise. Some of their greatest Divines and Statesmen were Schoolmasters in early life. The employment is considered and treated as an honourable one. The consequence is, that the common parish schools are generally under the care of well informed and virtuous men.

part of our country. In New-England, the mass of the people are more generally taught to respect literature, and to make exertions for conferring this advantage on their children. In that part of the Union also, the expense attending an Academic course is rather less than in most of the other American Seminaries. These two circumstances have a natural tendency to fill their Colleges with a greater number of Students than are to be found elsewhere.

The *Classic Literature* of the United States, as was before remarked, is almost every where superficial. It is believed, however, that the learned languages, and especially the Greek language, are rather less studied in the Eastern than in the Middle and Southern States. It is true, many more individuals attend to this branch of learning in the former than in the latter; but they read fewer books, and devote a less portion of time to the object.* For this fact, many reasons might be assigned; but it is not necessary to mention more than two. The one is, that, owing to the superior wealth enjoyed by a number of individuals in the Middle and Southern States, it was more common, during a great part of the eighteenth century, to send young men to Europe for their education from those States, than from New-England. The youth, thus educated, might be expected, of course, to bring back with them to their native country, a larger portion of classic literature than could be easily acquired in American seminaries. Another reason is, that, while almost all the instructors of youth in New-England, and especially

* The Author is aware, that in tracing the literary history of New-England, the names of some classical Scholars of great eminence are found. He means, however, only to speak of the degree of attention *generally* paid to Classic literature, by those who go through a collegiate course in the Eastern States, and especially within the last twenty or thirty years.

the higher classes of them, during the last hundred years, have been natives; a large portion of the Superintendents of Academies, and of the Presidents and Professors of Colleges, in the Middle and Southern parts of our country, during the same period, were Europeans, and many of them eminently accomplished in classic literature. If, therefore, the knowledge in this branch of learning, acquired in the best seminaries of Europe, were usually more accurate and profound than could ordinarily be obtained from our native citizens, it must follow of course, that those who derived their classical learning from the former of these sources, were, in general, more thoroughly instructed themselves, and consequently more capable of instructing others, than those who had access only to the latter.

In the study of *Oriental Literature*, it is believed that New-England has generally excelled the Middle and Southern States. Certain it is, that we hear of more eminent Orientalists in the former than in the latter; if we except a few foreigners occasionally residing among us. This we may ascribe to the great Oriental learning of several of those distinguished divines who came with the first settlers to New-England, or who soon afterwards followed them thither. The influence of these men has continued, in a degree, to the present day. To this circumstance it may be added, that the University of Cambridge, in Massachusetts, is the only seminary of learning in the United States in which a Professorship for instruction in the Oriental languages has been steadily maintained through the whole of the eighteenth century.

In the cultivation of *Mathematics* and *Natural Philosophy*, it is difficult to say to what part of our country the preference ought to be given. Pro-

bably an impartial judge, taking the whole history of the country together, would give the palm, in this respect, to Pennsylvania and Massachusetts.

The Sciences of *Chemistry*, *Natural History*, and *Medicine*, have long been, and continue to be, more successfully cultivated in the Middle and Southern than in the Eastern States. The same reasons apply in this case that were suggested with respect to Classic literature. Comparatively, few young men have been sent, at any period, from the Eastern States to European seminaries to complete their medical education. Besides this consideration, foreigners, even of literary and scientific character, have received less encouragement to settle in those States than in most other parts of the Union. On the other hand, from the Middle and Southern States a number of young men have been, every year, sent to the Medical Schools of Europe, who not only attended the ordinary courses of instruction in *Medicine*, strictly so called, but also the Lectures delivered on *Chemistry* and *Natural History*, as important auxiliary branches of Philosophy. It is further to be observed, that several learned and enterprizing foreigners, who visited and resided for some time in New-York, Pennsylvania, Virginia, and South-Carolina, devoted much of their time and attention to Natural History;[y] excited some of the native citizens, in their respective neighbourhoods, to engage in this study;[z] and thus introduced that

[y] There is a particular reference here to CATESBY, GARDEN, and WALTER, who resided in South-Carolina; to MITCHELL, who spent a number of years in Virginia; to Professor KALM, who devoted several years to travelling in the Middle States; to SCHOEPF and WANGENHEIM, who came to America with the German troops, during the Revolutionary war; to whom may be added, Dr. COLDEN and Dr. MUHLENBERG, whose talents and zeal in the study of Botany have been before repeatedly mentioned.

[z] It was probably owing to the conversation and influence of these, or of some other foreigners visiting the country, that CLAYTON, STARKE,

taste for inquiries of this nature which has ever since existed, in a greater or less degree, in some individuals in those States.

New-England has given birth to the greatest number, and the most eminent of the native *Theological* writers of America. And there is no doubt that by far the larger portion of the *Sermons* printed in the United States, whether in volumes or single discourses, is produced in that part of our country. It may also be asserted, that almost all the valuable disquisitions on the *Philosophy of the human mind*, which have been published on this side of the Atlantic, were written in New-England.

In the literature and science of *Politics*, it is not easy to say which part of our country is most entitled to credit. If we pronounce in favour of those States, which have produced the greatest number of eminent political writers, we must give the first honours to Massachusetts, New-York, Pennsylvania, and Virginia. But there is no subject more generally studied, in every State in the Union, than Political science; none on which our literary men so frequently write; and, of course, none which so constantly calls forth the exertion of talents.

Of *Historical* composition, the Eastern States have produced their full proportion, and rather more. Of respectable *Poets*, they have given birth to a greater number than any other proportional division of the Union. And in *Belles Lettres* generally, there is, without doubt, more cultivation in New-England than in any other part of our country; if we except the larger cities in the Middle and Southern States.

With respect to the *Mechanic Arts*, New-England has furnished her full proportion of those in-

CARY, and GREENWAY, of Virginia; and the BARTRAMS, MARSHALL, and others, of Pennsylvania, were so much devoted to botanical pursuits

ventions and improvements which do honour to American genius. And with regard to the *Fine Arts*, *three* out of *four* of our greatest native *Painters* were born in that division of the country.

It must, however, after all, be acknowledged, that what is called a *liberal education* in the United States, is, in common, less accurate and complete; the erudition of our native citizens, with some exceptions, less extensive and profound; and the works published by American Authors, in general, less learned, instructive, and elegant,[a] than are found in Great-Britain, and some of the more enlightened nations on the Eastern continent. These facts, it is apprehended, arise not from any deficiency of talents in our country, nor from any inaptitude in its soil or atmosphere to promote the growth of genius; but from one or another, and, in some cases, from a combination of the following causes.

1. *Defective plans and means of instruction in our Seminaries of learning.* The great majority of our Colleges have very inadequate funds. The consequence is, that in most of them the Professors are few in number, and have assigned to them too large a field of instruction. Hence they can convey but very superficial knowledge of the various branches which it is made their duty to teach, and if well qualified themselves, which is far from being always the case, find it impossible to do justice to the pupils. In some instances, also, the Trustees or Governors of American Colleges, either from their own ignorance, or in compliance with popular prejudice, have so contracted the time re-

a It is not meant to be denied that a few of the works published in America are as profound and instructive as any on similar subjects published elsewhere. It is simply intended to give a *general* character of American publications, liable to such exceptions as the mind of the well-informed reader will readily supply.

quisite for completing a course of instruction, as to render it necessary wholly to dispense with, or lightly to hurry over, some of the most important branches of knowledge. Accordingly, in some of these institutions, Mathematical Science is unpopular, and the acquisition of as little as possible especially of the higher branches of it, enjoined on the student. In others, Classic literature, and especially the Greek language,[b] is in low estimation, and not more studied than is indispensibly necessary to obtaining a *diploma*. If well bred scholars ever issue from such Seminaries, they must be formed by a degree of private and individual application rarely to be met with in youth.

2. *Want of Leisure.* The comparatively equal distribution of property in America, while it produces the most benign political and moral effects, is by no means friendly to great acquisitions in literature and science. In such a state of Society, there can be few persons of leisure. It is necessary that almost all should be engaged in some active pursuit. Accordingly, in the United States, the greater number of those who pass through a course of what is called liberal education, in the hurried manner which has been mentioned, engage, immediately after leaving College, in the study or business to which they propose to devote themselves. Having run over the preliminary steps of instruction in this business, probably in a manner no less hurried and superficial than their academic studies, they instantly commence its practical pursuit; and are, perhaps, during the remainder of life, consigned to a daily toil for support, which precludes them from reading, and especially from gaining much knowledge out of their particular

b In some American Colleges, we are told that no more knowledge of Greek is required in those who graduate *Bachelor of Arts*, than that which may be derived from the Grammar and the Greek Testament.

profession. Such is the career of ninety-nine out of an hundred of those in our country who belong to the learned professions. When the alternative either lies, or is supposed to lie between erudition and poverty, or comfortable affluence and moderate learning, it is not difficult to conjecture which side will be chosen; nor is it suprizing that, in such a state of things, there should be less profound erudition, less elegant accomplishment in literature, than where a considerable number enjoy all the advantages of exemption from laborious duties, and all the accommodations of opulent leisure.

To this circumstance may be ascribed the superficial and unpolished character of many of our native publications. All that their authors, in many cases, want, to render them more replete with instruction, more attractive in manner, and, of course, more worthy of public approbation, is *leisure*. But, able only to redeem a few hasty hours for literary pursuits, from the employments which give them bread, they must necessarily, if they publish at all, send forth productions, from time to time, bearing all the marks of haste and immature reflection.

3. *Want of encouragement to learning.* Men cannot be expected to labour without the hope of some adequate reward. Genius must be nourished by patronage, as well as strengthened by culture. Where substantial emoluments may be derived from literary exertion, there, and there alone, will it be frequently undertaken to any considerable extent. Hence, in those countries where genius and learning are best rewarded, there they are ever found to be most cultivated. In the United States, the rewards of literature are small and uncertain. The people cannot afford to remunerate eminent talents or great acquirements. Booksellers, the great patrons of learning in modern times,

are in America too poor to foster and reward the efforts of genius. There are no rich *Fellowships* in our Universities to excite the ambition of students; no large ecclesiastical benefices to animate the exertions of literary divines.[c] Academic chairs are usually connected with such small salaries, that they present little temptation to the scholar; and, finally, the State offers very inconsiderable motives for the acquisition of knowledge, and the exertion of talents. Its rewards are small, and its favour capricious. Can it be wondered, then, that those who have some acquaintance with books, and hold important stations, are more anxious to secure pecuniary advantages, and to place themselves in a situation independent of popular favour, than to make advances in literature, or to do honour to their country by the display of intellectual pre-eminence?

Besides, the spirit of our people is *commercial*. It has been said, and perhaps with some justice, that the *love of gain* peculiarly characterizes the inhabitants of the United States. The tendency of this spirit to discourage literature is obvious. In such a state of Society, men will not only be apt to bend their whole attention to the acquirement of property, and neglect the cultivation of their minds as an affair of secondary moment; but letters and science will seldom be found in high estimation; the amount of wealth will be the principal test of influence; the learned will experience but little reward either of honour or emolument; and, of course, superficial education will be the prevailing character.

c The Author would by no means be understood to express an opinion, that such immoderately lucrative places, either in Church or in State, are, on the whole, useful, or desirable. He is persuaded that they are much more productive of mischief than of advantage. But that they often excite literary ambition, and afford, in many instances, convenient and useful leisure to literary characters, will scarcely be questioned by those who have paid any attention to the subject.

Nor is it of less importance here to recollect, that the nature of our connection with Great-Britain has operated, and continues to operate unfavourably to the progress of American literature. Long accustomed to a state of colonial dependence on that enlightened and cultivated Nation, we have also been accustomed to derive from her the supplies for our literary wants. And still connected with her by the ties of language, manners, taste, and commercial intercourse, her literature, science and arts may be considered as ours. Being able, therefore, with so much ease, to reap the fruits of her fields, we have not sufficient inducement to cultivate our own. And even when an excellent production of the American soil is offered to the public, it is generally undervalued and neglected. A large portion of our citizens seem to entertain the idea, that nothing worthy of patronage can be produced on this side of the Atlantic. Instead of being prompted to a more liberal encouragement of genius because it is American, their prejudices, on this account, are rather excited against it.[d]

4. *Want of Books.* In the capital cities of Europe, the votary of literature is surrounded with immense Libraries, to which he may easily obtain access; and even in many of the smaller towns, books on any subject, and to almost any number, may be easily obtained. It is otherwise in America. Here the student, in addition to all the

[d] The writer in the *Monthly Magazine*, whose strictures on American literature were before mentioned, represents the inhabitants of the United States as having strong prejudices in favour of their own productions, and ridicules them for preferring American publications to all others. In this, as well as in most of his assertions, he discovers profound ignorance of the subject. The fact is directly the reverse. Americans are too apt to join with ignorant or fastidious foreigners, in undervaluing and decrying our domestic literature; and this circumstance is one of the numerous obstacles which have operated to discourage literary exertions on this side of the Atlantic, and to impede our literary progress.

other obstacles which lie in his way, has often to spend as much time and thought to obtain a particular book, as the reading it ten times would cost. Our public Libraries are few, and, compared with those of Europe, small. Nor is this defect supplied by large private collections; these are also rare. And to render the evil still more grievous, the number of literary and enterprizing booksellers is yet smaller. It is only within two or three years that we have begun to receive, with any kind of regularity or promptitude, the best British works as they issue from the press.

Such are some of the causes which have hitherto impeded the progress of American Literature. Their influence, however, is gradually declining, and the literary prospects of our country are brightening every day. Letters and science are becoming more important in the public estimation. The number of learned men is becoming rapidly greater. The plans and means of instruction in our Seminaries of learning, though by no means improving in all respects, are, in some, receiving constant melioration. The emulation of founding and sustaining a national character in science and learning begins to be more generally felt, and, from time to time, will doubtless be augmented. A larger proportion of the growing wealth of our country will hereafter be devoted to the improvements of knowledge, and especially to the furtherance of all the means by which scientific discoveries are brought within popular reach, and rendered subservient to practical utility. American publications are every day growing more numerous, and rising in respectability of character. Public and private Libraries are becoming more numerous and extensive. The taste in composition among our writers is making very sensible progress in correctness and refinement. American authors

of merit meet with more liberal encouragement; and when the time shall arrive that we can give to our votaries of literature the same leisure, and the same stimulants to exertion with which they are favoured in Europe, it may be confidently predicted, that letters will flourish as much in America as in any part of the world; and that we shall be able to make some return to our transatlantic brethren, for the rich stores of useful knowledge which they have been pouring upon us for nearly two centuries.

RECAPITULATION.

WE have now made a hasty tour through one of the departments of the subject which we undertook to examine. From the foregoing survey, which, however tedious it may have appeared to the reader, is, in reality, a very rapid one, the eighteenth century appears to bear a singularly distinct and interesting character. In almost every department of knowledge, we find monuments of enterprize, discovery, and improvement; and, in some, these monuments are so numerous, valuable, and splendid, as to stand without parallel in the history of the human mind. There have been periods in which particular studies were more cultivated; but it may be asserted, with confidence, that in no period of the same extent, since the creation, has a mass of improvement so large, diversified and rich been presented to view. In no period have the various branches of science, art and letters, received, at the same time, such liberal accessions of light and refinement, and been made so remarkably to illustrate and enlarge each

other. Never did the inquirer stand at the confluence of so many streams of knowledge as at the close of the eighteenth century.

But, in order to bring more immediately and disinctly into view the leading characteristics of the last age, as deducible from the statements which have been given, an attempt will be made to sum them up in the few following particulars:

1. The last century was pre-eminently an AGE OF FREE INQUIRY. No period in the history of man is so well entitled to this character. Two centuries have not rolled away, since the belief that the earth is globular in its form was punished as a damnable heresy; since men were afraid to avow the plainest and most fundamental principles of philosophy, government, and religion; and since the spirit of liberal inquiry was almost unknown. In the seventeenth century, this spirit began to show itself; but it was reserved for the eighteenth to witness an indulgence and extension of it truly wonderful. Never, probably, was the human mind, all things considered, so much unshackled in its inquiries. Men have learned, in a greater degree than ever before, to make light of precedent, and to throw off the authority of distinguished names. They have learned, with a readiness altogether new, to discard old opinions, to overturn systems which were supposed to rest on everlasting foundations, and to push their inquiries to the utmost extent, awed by no sanctions, restrained by no prescriptions.

This revolution in the human mind has been attended with many advantages, and with many evils. It has led to the developement of much truth, and has contributed greatly to enlarge the bounds of literature, science, and general improvement. It has opened the way to a free communication of all discoveries, real or supposed, and re-

moved various obstacles which long retarded the progress of knowledge. But this spirit of inquiry, like every thing else in the hands of man, has been perverted and abused. It has been carried to the extreme of licentiousness. In too many instances, the love of novelty, and the impatience of all restraint founded on prescription or antiquity, have triumphed over truth and wisdom; and, in the midst of zeal for demolishing old errors, the most sacred principles of virtue and happiness have been rejected or forgotten.

2. The last century may be emphatically called the AGE OF PHYSICAL SCIENCE. It was not till the seventeenth century that the physical sciences began to assume a conspicuous place among the objects of study. Before that period, the learned languages, ancient history, and the metaphysical jargon of the schoolmen, had chiefly engrossed the attention of literary and scientific men. From the time of BACON and KEPLER, a taste for natural philosophy began to extend itself. This taste was cherished and improved by the scientific associations which began to be formed in different parts of Europe about the middle of the seventeenth century. But in the eighteenth, it became far more predominant than at any former period, and may be said to form a prominent feature of the age.

It has been seen, that several branches of *Mechanical Philosophy*, wholly new, were introduced into the popular systems in the course of this period; and that in almost all the branches formerly studied, there were made immense discoveries and improvements. *Chemistry* has been so much improved and extended, both in its principles and application, that it may be pronounced a new science. In *Natural History*, the progress of philosophers, within the last hundred years, has been no less signal and honourable. The amount of what

has been accomplished in various plans of classification, in the corrections of nomenclature, and in additions to the former lists of specimens in natural history, more particularly in zoology, botany, and mineralogy, is too great to be collected or exhibited by any individual. A similar extension of our knowledge has taken place in *Medicine*, in *Agriculture*, in *Geography*, and in the principles, as well as practice of *Mechanic Arts*. All these come under the general denomination of *Physical Science*. It is too evident to admit of a doubt, that there never was a period in which so much enlightened attention was paid to objects of this kind, or any thing like such a sum of improvement introduced as in the eighteenth century.

Some observers of the revolutions and progress of science have divided the century under review into three parts, and considered each part as particularly distinguished by the cultivation of one of the principal physical sciences. From 1700 till 1735, the *Newtonian Philosophy* engaged the largest share of the attention of the learned. How great a portion of the publications and controversies of that day had a respect to this philosophy, the well-informed reader will not be at any loss to recollect. From 1735 till about the year 1765 or 1770, may be called the period of *Natural History;* as the various branches of study included in this general denomination, more especially zoology and botany, were never before, in any comparable degree, so much cultivated. For this prevalence of the study of Natural History we are, perhaps, indebted to the genius, labours and influence of no two individuals so much as to those of Linnæus, and the Count De Buffon. From 1770 till 1801, may be styled the period of *Chemistry;* that science having given rise to more numerous experiments and publica-

tions during this period than any other. Those who had most influence in bringing into vogue this branch of physical science, and conferring upon it that importance and extent which it has gained, are SCHEELE, KLAPROTH, LAVOISIER, and PRIESTLEY.

Upon a review of the foregoing sheets, it may also be remarked, that the physical sciences, during the period in question, appear to have been cultivated with unusual ardour in particular countries. In *Mechanical* and *Mathematical Philosophy*, it is not easy to say to which of the scientific nations of Europe the palm of superiority ought to be awarded. In *Chemistry*, France is doubtless entitled to the first place. After her, Germany, Great-Britain, &c. follow in comparative merit. In *Natural History*, the different nations may be represented as standing in the following rank. First France, second Germany, third Sweden, fourth Great-Britain, fifth Switzerland, Italy, &c. &c. In *Medicine*, Great-Britain, beyond all doubt, has long held the first place, though it must be acknowledged, that the progress of medical science in France, Germany, and the United States, towards the close of the century, deserves to be noticed as very remarkable and promising. In *Geography*, Great-Britain and France must divide the larger portion of the mass of honours between them. In *Agriculture*, the highest praise is unquestionably due to Great-Britain. And in all those scientific researches which bear upon Arts, Manufactures, and Economy, the last mentioned country must also be pronounced to stand first in order.

3. The eighteenth century may, with propriety, be styled, THE AGE OF ECONOMICAL SCIENCE. In all preceding ages, science, and the economical arts were too generally viewed as unconnected. The philosopher thought it beneath his dignity to

direct his inquiries to the aid of the mechanic, and to the various details of public and domestic economy; and the mechanic and economist had been taught to consider the inquiries of the philosopher as mere curious speculations, with which the practical concerns of life had little to do. The eighteenth century has produced a signal revolution, both in the aspect of scientific investigations, and in the state of public opinion on this subject. Philosophy has assumed a more practical and useful form. The artist and the philosopher have learned to go hand in hand. Many modern discoveries, in different branches of science, and especially in Natural Philosophy and Chemistry, while they gratify liberal curiosity, and give pleasure to the man of speculation, have also rendered essential service to the Mechanic arts, to Agriculture, to Medicine, to domestic economy, and, in general, to the abridgement of labour, and to the more easy and cheap preparation of the various comforts and elegancies of life. It would be easy to give a catalogue of economical philosophers of the eighteenth century, who were never equalled by any of preceding times. To mention no more, our illustrious countryman, Count RUMFORD, at the close of this period, presented to the world an example of practical science, of which we shall perhaps search in vain for a parallel in the history of man.

4. The last century may also, in a peculiar and distinguishing sense, be called THE AGE OF EXPERIMENT. The mode of pursuing knowledge, by observation, experiment, analysis, and an induction of facts, though not absolutely begun by Lord BACON, was, for the first time, employed to any considerable extent by that enlightened philosopher. The influence of his example in this respect, in the sixteenth century, in which he lived, was

comparatively small. In the seventeenth, his plan of philosophizing was more frequently adopted. But in the eighteenth, it obtained an ascendency and prevalence never before known in the history of science. Never were there so many heads and hands at work, to develope the arcana of nature, to investigate her laws, and to bring former principles, as far as possible, to the test of weight, measurement, and vision. The amount of experiments of different kinds, and instituted for different purposes, laid before the public, within this period, by individuals, and by learned societies, forms a mass of stupendous extent, and presents one of the most prominent features of the age.

These remarks apply almost exclusively to the physical sciences; for there is too much reason to suppose, as will be afterwards shown, that, in the philosophy of the human mind, and especially of human duty, the prevailing character of the age, and particularly of the latter part of it, has been that of *vain speculation* and *fantastic theory*, rather than of principles dictated by sober and enlightened experience. But in the physical sciences, amidst much false theory, such an immense variety and amount of *facts* and experiments have been laid before the public, as eminently to distinguish the eighteenth from all preceding centuries.

5. The last age was remarkably distinguished by REVOLUTIONS IN SCIENCE. Theorists were more numerous than in any former period, their systems more diversified, and revolutions followed each other in more rapid succession. In almost every department of science, changes of fashion, of doctrine, and of authority, have trodden so closely on the heels of each other, that merely to remember and enumerate them would be an arduous task.

The frequency and rapidity of scientific revolutions may be accounted for in various ways. The extraordinary diffusion of knowledge; the

swarms of inquirers and experimenters every where abounding; the unprecedented degree of intercourse which men of science enjoyed; and, of consequence, the thorough and speedy investigation which every new theory was accustomed to receive, all led to the successive erection and demolition of more ingenious and splendid fabrics than ever previously, within the same compass of time, passed before the view of man.

The rapid succession of discoveries, hypotheses, theories and systems, while it has served to keep the scientific world more than ever awake and busy, has done mischief by perplexing the mind with too many objects of attention, and by rendering the labour of the student more extensive, difficult, and tedious. If, in the seventeenth century, the inquirer had reason to complain, that the shifting aspect of science rendered necessary the most unremitting vigilance, and an endless repetition of his toil, this complaint might have been urged with an hundred fold more reason in the eighteenth. The advantages, however, of this state of things may be considered, on the whole, as predominant. The ardour, the competition, and the diligence in the pursuit of knowledge which it has inspired, deserve at once to be recognized as beneficial, and to be noticed as distinguishing characteristics of the age.

6. The last century is pre-eminently entitled to the character of THE AGE OF PRINTING. It is generally known, that this art is but little more than three centuries old. Among the ancients, the difficulty and expense of multiplying copies of works of reputation were so great, that few made the attempt; and the author who wished to submit his compositions to the public, was under the necessity of reciting them at some favourable meeting of the people. The disadvantages attending

this state of things were many and great. It repressed and discouraged talents, and rendered the number of readers extremely small. The invention of *printing* gave a new aspect to literature, and formed one of the most important eras in the history of human affairs. It not only increased the number, and reduced the price of books, but it also furnished authors with the means of laying the fruits of their labours before the public, in the most prompt and extensive manner. Considering this art, moreover, as a great moral and political engine, by which an impression may be made on a large portion of a community at the same time, it assumes a degree of importance highly interesting to the philanthropist, as well as to the scholar.

The extension of this art in the eighteenth century forms one of the leading features of the age. In the sixteenth and seventeeth centuries, especially in the former, printing presses were few, and, of course, publication was by no means easy. The century under review exhibited an immense extension of the art. This extension was not only general, but so great, that the most moderate estimate presents a result truly stupendous. There was probably a *thousand fold* more printing executed in the course of this century, than in the whole period that had before elapsed since the invention of the art.* The influence of this fact, in increasing the sum of public intelligence, and in keeping the minds of men awake and active, cannot but be noticed by the most superficial observer of the cha-

x This will appear a moderate calculation, when it is considered that there is a prodigious increase, not only in the number of new works annually issued from the press, but also in the extent and number of *editions* constantly demanded by the public. And when to this is added the amount of printing which has been continually going forward, particularly within the last fifty years, in furnishing the whole literary world with such a number and variety of periodical publications, as Reviews, Magazines, Newspapers, &c. the estimate above stated will probably be thought rather to fall below than to exceed the truth.

facter of the period under consideration. Printing presses have not only become numerous in the populous cities, in every literary portion of the world; but also in remote parts of the country these engines for the diffusion of information are found: thus furnishing the good with the means of sowing the seeds of truth and virtue, and the wicked with the means of scattering poison, to an extent never before witnessed in human society.

7. The last century is entitled to distinction above all others, as THE AGE OF BOOKS; an age in which the spirit of *writing*, as well as of *publication*, exceeded all former precedent. Though this is closely connected with the foregoing particular, it deserves a more distinct and pointed notice. Never, assuredly, did the world abound with such a profusion of various works, or produce such an immense harvest of literary fruits. The publication of books, in all former periods of the history of learning, laboured under many difficulties. Readers were comparatively few;[y] of course writers met with small encouragement of a pecuniary kind to labour for the instruction of the public.[z] Hence, none in preceding centu-

y "To prove the paucity of readers," in the seventeenth century, "it may be sufficient to remark, that the British nation had been satisfied from 1623 to 1664, that is, a period of forty-one years, with only *two* editions of the works of Shakspeare, which probably did not together make one thousand copies." *Life of* MILTON, *by* JOHNSON.

Whereas, in the eighteenth century, from 1733 to 1778, that is, in forty-five years, *ten* large and splendid editions of the same author were given to the public, and, probably, at least *ten more*, of a less magnificent kind, in various parts of the British dominions. Allowing each of these editions to have consisted of two thousand copies, which, on an average, may be supposed a moderate allowance, the number of copies of one publication called for by the English literary public, in a given period of the eighteenth century, will be found *forty times* greater than the number called for, during a period nearly equal in the seventeenth.

z The advantage now enjoyed by authors, of deriving large profits from the sale of *copy-rights*, is wholly modern. Mr. BARETTI, a friend of Dr. JOHNSON, who resided for some time in England, about half a century ago, told the Doctor, that he was the first man in Italy who received money for the *copy-right* of a book. BOSWELL'S *Life of* JOHNSON, vol. ii. p. 503. Though this practice had been established long be-

ries became authors, but such as were prompted by benevolence, by literary ambition, or by an enthusiastic love of literature. But the eighteenth century exhibited the business of publication under an aspect entirely new. It presented an increase in the number, both of writers and readers, almost incredible. In this century, for the first time AUTHORSHIP BECAME A TRADE. Multitudes of writers toiled, not for the promotion of science, nor even with a governing view to advance their own reputation, but for the market. Swarms of *book-makers by profession* arose, who inquired, not whether the subjects which they undertook to discuss stood in need of further investigation; or whether they were able to do them more ample justice than their predecessors; but whether *more books* might not be palmed upon the public, and made a source of emolument to the authors. Hence, there were probably more books published in the eighteenth century, than in the whole time that had before elapsed since the art of printing was discovered; perhaps more than were ever presented to the public, either in manuscript, or from the press, since the creation.

This unprecedented and wonderful multiplication of books, while it has rendered the means of information more easy of access, and more popular, has also served to perplex the mind of the student, to divide his attention, and to distract his powers. Where there are so many books, there will be less deep, original, and pa-

fore in Great-Britain, yet even there the instances of literary profit were rare, and the amount, in general, extremely small, until the middle, and toward the close of the eighteenth century. MILTON sold his *Paradise Lost* for *five pounds*, on condition of receiving some small subsequent emolument, if the sale should prove ready and extensive. Forty-six years afterwards, Mr. POPE received *two hundred pounds* for each volume of his translation of the *Iliad*, or *twelve hundred pounds* for the whole work. And towards the close of the century, the rewards of literary labour were, in many instances, augmented four, six, and even ten fold.

tient thinking; and each work will be studied with less attention and care. It may further be observed, that the abridgements,[a] compilations, epitomes,[b] synopses, and selections which are daily pouring from the press in countless numbers, and which make so large a part of modern publications, have a tendency to divert the mind from the treasures of ancient knowledge, and from the volumes of original authors.[c] Thus, the multiplicity of new publications, while they would seem at first view, highly favourable to the acquisition of learning, are found, as will be afterwards more fully shown, hostile to deep and sound erudition.

The allurements to authorship which the modern state of literature holds out, also lead to another evil, viz. the *hasty production of books*. The *nonum prematur in annum* of former times, has been too generally disregarded or forgotten by late writers. Authors, instead of holding their works under the polishing hand of criticism for many years, are now tempted prematurely to hasten before the public. We have lately heard of an *Epic Poem*, nearly as long as the *Paradise Lost*, composed in *six weeks!* and of writers on the most important and difficult subjects, running a race with the press. The mischiefs arising from such rapi-

a Never was there an age in which the *abridgement* of voluminous works was carried to so great and mischievous a length as in the eighteenth century. This mode of treating a prolix writer may, in some cases, be justified; but, in general, it deserves to be reprobated as a practice both presumptuous and unfair. Dr. JOHNSON often spoke of this practice in terms of warm and just indignation. Once, in particular, hearing a friend observe, that "abridging a good book was like presenting a cow with her head and tail cut off," he replied, with equal wit and severity—"*No, Sir, it is making a cow to have a calf.*"

b "Epitomes are the moths and corruptions of history, that have fretted and corroded the sound bodies of many excellent histories, and wrought them into base and unprofitable dregs." BACON.

c "It is observed," says Dr. JOHNSON, "that *a corrupt society has many laws;* I know not whether it is not equally true, that *an ignorant age has many books.* When compilers and plagiaries are encouraged, the treasures of ancient knowledge will lie unexamined, and original authors will be neglected and forgotten."

dity of composition are many and great. Writers of the most exalted genius and extensive learning, when they proceed in this manner, must throw into their volumes much crude and indigested matter; and when those of ordinary capacity presume to indulge in the same haste, nothing can be expected from them but half-formed conceptions, and useless, if not mischievous productions. Hence, the last age is distinguished above all others, by producing thousands of worthless volumes, which encumber the shelves of libraries, and consume, without profit, the time of unwary readers.

The *spirit of trade*, by which the authors and publishers of books first began, in the eighteenth century, to be actuated in any considerable degree, has produced, and still continues to produce another serious evil. It too often leads men to write, not upon a sober conviction of truth, utility, and duty, but in accommodation to the *public taste*, however depraved, and with a view to the most *advantageous sale*. When pecuniary emolument is the leading motive to publication, books will not only be injuriously multiplied, but they will also be composed on the sordid calculation of obtaining the greatest number of purchasers. Hence, the temptation to sacrifice virtue at the shrine of avarice. Hence, the licentious and seductive character of many of those works which have had the greatest circulation in modern times, and which have produced the greatest emolument to their authors.

From the unprecedented spirit of publication which the eighteenth century exhibited, it has happened, as a natural consequence, that the character of an *author* has become lower in the public estimation, than it generally stood in preceding ages. Every object loses something of its value in the public esteem, in consequence of being cheap.

and common. Thus it has fared with the dignity of authorship. Persons of this profession have become so numerous in society; many of those who engage in it discover such a selfish and mercenary spirit; and it is found so easy a task to compile a book, that their importance has suffered a diminution in some degree corresponding with the number and worthlessness of their literary labours.

Another signal revolution in the literary character of the eighteenth century, and closely connected with the multiplication of books, is, that *Booksellers* have become the *great patrons of literature*. In ancient times, authors having no hope of finding a remuneration for their labour in the general sale of their works, were under the necessity of attaching themselves to some private patron, who, to great wealth, united a fondness for literature and literary men. Some of the most accomplished writers of antiquity would have been unable to pursue their studies, or to complete those works which have so long instructed and delighted the world, had they not enjoyed the smiles of certain individuals of opulence and taste, who made it their pride and pleasure to foster literary merit. The same state of things existed, in a degree, for nearly two centuries after the art of printing was discovered. The number of publications and of readers was comparatively so small, that Booksellers were few; and those who engaged in this employment had little business, and, of course, occupied a humble station in society. The eighteenth century exhibited this class of tradesmen under an aspect entirely new. The great increase in the number of readers and purchasers of books, and the corresponding increase in the number of publications, and in the extent of the editions, both of old and new works, have raised the bookselling business to a most important and lucrative employ-

ment. The number of those who engage in this business, is probably increased, taking the literary world at large, more than an *hundred fold.*[d] The extent and profits of their trade have grown in a still greater proportion. These circumstances have enabled them to become the patrons of learning; to pay generously for literary labours; and to put it in the power of authors to appear more speedily and advantageously at the bar of the public, Hence the ease of publication. And hence the countless number of volumes, which could never have found their way to the press in a different state of society.

8. The eighteenth century is distinguished for the UNPRECEDENTED DIFFUSION OF KNOWLEDGE. Not only has a greater number of books issued from the press, during this period, than the accumulated product of all preceding ages can display; but these books have had a more general circulation than in any former period. To read, a little more than a century ago, was by no means a general object of attention. At that time, neither the middle classes of society, nor oftentimes persons of high rank, thought ignorance a disgrace. The Female sex seldom resorted to books, either for amusement or instruction; and many respectable habitations scarcely contained a volume excepting the Bible, and one or two devotional books of standard value. In fact, as books of science then rarely appeared, so " those which did appear, containing the accumulated stores of profound research, and entensive reading, were nei-

d The increase in the number of *Printers* and *Booksellers* in America, during the period in question, was at least in this proportion. And there can be no doubt, that a similar increase has taken place in most other parts of the literary world. In the city of *Paris*, there are said to be four hundred and fifty-five *Booksellers*, and three hundred and forty *Printers*. In *London*, the number, though not so large, is very great. In *Germany*, these classes of tradesmen are probably more numerous, but more scattered through the empire.

ther accessible nor intelligible, but by a few who had leisure, much previous information, and perseverance." It is true, as will be presently acknowledged, that such as, at that time, professed to devote themselves to study, were, in general, at least equally, if not more learned, than those who profess to belong to the same class at the present day. But the number of those at the end of the eighteenth century, who were in the habit of reading a few books, and who possessed a moderate and respectable share of information, was certainly far greater than in former periods of the history of man.

Some modern zealots, indeed, have gone beyond all just bounds, in describing the illumination and refinement of this period. We are not so much wiser than our forefathers, as the sanguine and ignorant would sometimes represent us. But there is surely no extravagance in saying, that there never was an age in which knowledge of various kinds was so *popular* and so *generally diffused*, or in which so many publications were circulated and read. The elements of literature and science have descended from the higher classes of society, and from universities, to the middle, and, in some instances, to the lower orders of men. Speculations which were once, in a great measure, confined to the closets of the curious, have gradually mingled themselves with the most prevailing and familiar doctrines of the day. Many modern females are well informed, and a few extensively learned. The common people read and inquire to a degree that would once have been thought incredible. Seminaries of learning are multiplied beyond all precedent. The number of students which they contain is, in general, much greater than formerly. Modern books, even those on subjects of science, are now divested of their former envelopements of

dead languages, and presented in a plain and popular dress. Booksellers, more rich, active and enterprizing than they were a century ago, now find it their interest to scatter books in every direction, and to convey some knowledge of them to every door. Libraries have become far more numerous, and are placed on a more popular footing than formerly. Circulating Libraries[e] have been introduced during this period, and have contributed greatly to extend the taste and the means of reading; and, finally, periodical publications, and a variety of other small works, which might be procured at a trifling expense, and understood by moderate capacities, or with little previous information, broke down the large masses of science and learning, presented their component materials in small and convenient portions, and thus fitted them to be received by every mind.

9. But, notwithstanding the wonderful multiplication of books, the last century may, with propriety be styled, THE AGE OF SUPERFICIAL LEARNING. *Erudition*, strictly so called, has been evidently on the decline, from the commencement of this period to its termination. The number of *readers*, indeed, and of those who assume to themselves the title of *literary* men, was doubtless far greater at the close of the century than ever before, since reading was known: but the number of the truly and profoundly learned was perhaps never so small, in proportion to the whole number who rank with men of letters and science. This is probably owing, in a great measure, to the following circumstances.

The artificial, luxurious, and dissolute character

e *Circulating Libraries*, it is believed, were first instituted in the eighteenth century. The first establishment of this kind in London was commenced by one WRIGHT, a bookseller, about the year 1740. In 1800 the number of these Libraries in Great-Britain was not less than *one thousand.*

of the age was not favourable to laborious and patient study. Few can be expected to devote themselves habitually to that kind of reading which requires deep reflection, and long continued attention, amidst the solicitations of company and pleasure, and the thousand dissipating attractions which an age of refinement, and of greatly extended intercourse, presents.

Another circumstance which has contributed to characterize the eighteenth century, as an age of superficial learning, is the unprecedented circulation of Magazines, literary Journals, Abridgments, Epitomes, &c. with which the republic of letters has been deluged, particularly within the last forty years. These have distracted the attention of the student, have seduced him from sources of more systematic and comprehensive instruction, and have puffed up multitudes with false ideas of their own acquirements. The mass of new, hastily composed, and superficial works, have engrossed the minds of by far the greater number of readers, crowded out of view the stores of ancient learning, and even many of the best works of the preceding century, and taught too many to be satisfied with the meagerness of modern compends and compilations. It may be safely pronounced, that the eighteenth century, not only with regard to the treasures of Classic literature, but also with respect to a knowledge of the best writers of all the preceding seventeen centuries, was retrograde rather than progressive throughout the whole of its course.

An additional cause, unfavourable to deep and sound erudition, is the nature of those employments which, in modern times, solicit the attention of mankind. In every age, a great majority of men are destined to a laborious and active life. But in the eighteenth century, the wonderful ex-

tension of the commercial spirit; the unprecented multiplication of the objects and means of mercantile speculation; and the numerous temptations to a life of action, rather than of study, have brought more into vogue than formerly, that light, superficial, and miscellaneous reading, which fits men for the compting-house, and the scene of enterprize and emolument, rather than the recondite investigations of the closet.

There is also another cause which prevents individuals from acquiring the same depth of learning which was formerly attained. "The circle of human intelligence, within an hundred years, has been greatly extended: the objects of curious speculation, and of useful pursuit, have multiplied: many new branches of abstract science have been invented: many theories in physical philosophy have been established: the mechanical arts have received great enlargement and improvement: criticism has had its principles rendered more evident, and its application more exact: the analysis of the human mind is now generally an object of inquiry; and modern authors, in voluminous metaphysical treatises, in histories, in poems, and in novels, unfold the seminal principles of virtue and vice, and sound the depths of the heart for the motives of human action. Of these objects of mental occupation, every man who is elevated above the lower orders of society, is obliged to know something, either by the love of novelty, or by the shame of ignorance. But if the objects of inquiry be numerous, each cannot be investigated profoundly; the powers of the human mind are finite, and the union of accuracy and universality of knowledge is a chimera. In this case, therefore, the search will not be for complete and systematic treatises, which examine a subject on all sides, and in its minutest parts, detect it in its most

obscure beginnings, and trace its influence in the remotest consequences; but for books of less tremendous bulk, which exhibit the subject in its most material points, preserving general outlines, and principal features."[f]

To the causes above mentioned may be added one other, derived from the more frequent intercourse of men in advanced civilization. "In this intercourse, a taste for learned and ingenious conversation has arisen, and the natural desire of superiority impels men to excel in it. But in collecting means for acquiring this excellence, the specious rather than the useful are sought. Facts are stored, not for the exercise of rational criticism, nor for the deduction of important truth, but that they may be again distributed."[g] Hence the temptation to study many subjects superficially, but to gain the complete mastery of none. Hence those scraps and shreds of knowledge which are daily served up in periodical publications, and scattered through all grades of society, excepting the very lowest, in popular manuals, form a large part of that learning which is daily sported in the social circle, and in the conflicts of disputation.

10. From the details which have been given in the foregoing chapters, it appears that the last century may, with peculiar propriety, be styled, THE AGE OF TASTE AND REFINEMENT. In the productions of bold and original genius, though greatly fruitful, it has, perhaps, been exceeded by some former ages;[h] but in the general prevalence of taste and refinement, it may be confidently asserted that no age ever equalled the last. This remark might be illustrated at great length, by recurring to the

f *Monthly Review*, vol. xxix. p. 302, N. S.

g *Ibid.*

h "Much has been *written* in this age," says VOLTAIRE, "but genius belonged to the last."

state of the various branches of human knowledge and art, during the period in question.

In the *physical sciences* it might be shown, that, though great and splendid discoveries have been made in this period, much more has been done in pursuing former discoveries, in extending the limits of principles before established, in forming systems of classification, arrangement, and nomenclature, and in conferring beauty and elegance on every part. In the *Mechanic Arts* also, inventions have been made highly honourable to the genius of the age; but the improvements in simplicity, convenience, accuracy, and exquisite nicety of workmanship, are far more numerous, and more strikingly characteristic of the age.[i] But, perhaps, to *Polite Literature* this general remark may be applied with still more confidence, and to a greater extent. The poets and historians of the eighteenth century have the advantage of all their predecessors in no respect so decidedly as in uniform correctness, polish, and taste. In a word, the *Master Builders* in the temple of knowledge, during this period, have been, perhaps, fewer in number than in several preceding centuries; but neither the number nor the success of those who busied themselves in extending, polishing, and adorning the fabric, was ever so great.

This feature of the last age remarkably appears in the state of what may be called the *mechanical* part of literature. The refined, elegant, and expensive manner in which books have been for some time printed and decorated, more especially within

i It cannot be denied, that some articles of ancient manufacture which have come down to our times, discover an exquisite polish and elegance of workmanship, which we seldom find exceeded, perhaps not equalled at the present day. But that the Mechanic Arts, *in general*, reached a degree of improvement in the eighteenth century, which they could never before boast, particularly in simplicity, convenience and beauty, it is presumed that none will hesitate to admit.

the last ten or fifteen years of the century, as it marks a period of luxury and taste, so we may question whether it has not been carried to an injurious length. If this system of sacrificing the useful to the ornamental be pursued much further, it must contract the circulation of books, and, of course, diminish the number both of authors and of readers. Some have even pronounced, that it must operate to produce a "counter revolution in the republic of letters, and introduce all the misfortunes of a manuscript age."

11. The century under consideration may be denominated THE AGE OF INFIDEL PHILOSOPHY. There have been in every age "profane and vain babblings, and oppositions of science falsely so called." But it may be confidently pronounced, that there never was an age in which so many deliberate and systematic attacks were made on Revealed Religion, through the medium of pretended science, as in the last. A few truly learned and ingenious men made such attacks the main business of their lives; and many others, of humbler name, who vainly aspired to the name of *philosophers*, have directed their puny efforts towards the same object.

The doctrine of *Materialism*, probably, had a greater currency among certain classes of the learned, during this period, than in any former age enlightened with Christian knowledge. It was, indeed, pushed to an atheistical length by some who assumed the name, and gloried in the character of philosophers. *Astronomical records* have been fabricated or misinterpreted for the purpose of discrediting the sacred chronology. The natural history of the *Earth*, of *Man*, and of other animals, has been pursued with unwearied diligence, to find evidence which should militate against the information conveyed in the Scriptures.

The discoveries in *Chemistry* have been tortured to furnish a physical solution of all those phenomena of motion, life, and mind, which are unanimously considered, by more sober inquirers, as teaching the immateriality of the soul, and as proclaiming the existence of a supreme intelligent FIRST CAUSE. Systems of *Moral* and *Political* philosophy have been formed, by which their authors meant to strike at the root of evangelic truth. And all the stores of ancient and modern literature have been ransacked to obtain some pretext for disbelieving the precious Records which God condescended to bestow on our fallen race.

This rage for impious theory, though it had long before existed, began more boldly and extensively to proclaim its views about twenty years before the close of the period under consideration. There is scarcely a single branch of human knowledge to which this scientific and literary perversion has not reached; and scarcely a ridiculous or odious form of error to which it has not given rise. Were these motley and grotesque figures, formed by perverted genius, only intended to traverse the stage, for the temporary purpose of amusement, they might excite less of our attention; but, considering them, as their framers have anxiously desired to make them be considered, as guides to knowledge, and as rules of action, every lover of human happiness will regard them with more serious and indignant feelings. And although their influence has been counteracted by means which will be presently mentioned, they have yet poisoned the principles, and completed the ruin of millions.

Almost every successive age has some peculiarity in the style and manner of its philosophers and writers; some particular *livery*, which serves to distinguish it from other times. The scientific

livery of the last age is, as we have seen, a fantastic patch-work, enriched with many beautiful and precious materials, but deformed by the mixture of many gaudy colours and false ornaments. Among the latter we may reckon that continual prating about the "energies and progress of Mind," the "triumph of Reason," the "omnipotence of Philosophy," the "perfectibility of Man," &c. &c. which was never before so loud and frequent; which has been employed, with particular volubility and success, by infidel philosophers; and which, amidst continual and abundant refutations, is yet clamorous and obtrusive.

12. The period under review may be pronounced THE AGE OF CHRISTIAN SCIENCE. This is by no means inconsistent with the statement in the last particular; for, after all the attacks of infidelity, and of theoretical philosophy, the Religion of Christ, when contemplated through the medium of science, has had a complete and unprecedented triumph during this period. It has been often objected to Christianity, that it is unfavourable to the progress of knowledge; that it discourages scientific enterprize; that it is inimical to free inquiry, and has a tendency to keep the minds of men in blindness and thraldom. The history of the last concurs with that of many preceding centuries, in demonstrating that the very reverse of what the objection states is the truth. *Christian nations*, during the period in question, have been, of all others, most remarkable for favouring the advancement of liberal knowledge. In those countries in which Religion has existed in its greatest *purity*, and has enjoyed the most general *prevalence*, literature and science have been most extensively and successfully cultivated. It is also worthy of remark, that, among all the professions denominated *learned*, the *clerical* profession may

be considered as having furnished as many, if not more authors of distinction than any other. And if we join to the *clergy* those lay-authors who have been no less eminent as *Christians* than as scholars, the predominance of learning and talents on the side of Religion will appear too great to admit of comparison.

But this is not all:—As the last century is remarkable for having furnished an unprecedented number of attacks on Revealed Religion, through the medium of science; so it is also no less remarkable for having derived much support to Revelation, and much valuable illustration of the Sacred Writings, from the inquiries of philosophers and the observations of travellers. Many of the discoveries made in mechanical and chemical philosophy, during this period, have served to elucidate and confirm various parts of the Christian Scriptures. Every sober and well-directed inquiry into the natural history of man, and of the globe we inhabit, has been found to corroborate the Mosaic account of the Creation, the Fall, the Deluge, the Dispersion, and other important events recorded in the sacred volume. To which we may add, that the reports of voyagers and travellers, within this period, have no less remarkably served to illustrate the sacred records, and to confirm the faith of Christians. Never was there a period of the same extent in which so much light and evidence in favour of Revelation were drawn from the inquiries of philosophy as in that which is under review: nor was it ever rendered so apparent, that the information and the doctrines contained in the sacred volume perfectly harmonize with the most authentic discoveries, and the soundest principles of science.

13. The last century may be emphatically called THE AGE OF TRANSLATIONS.—"Of almost every

other kind of writing the ancients have left us models which all succeeding ages have laboured to imitate; but Translation may justly be claimed by the moderns as their own."—The *Greeks*, so far as we know, achieved nothing worthy of notice in this department of literary labour. The *Romans*, who confessed themselves the scholars of the Greeks, made a few versions of those writings which they followed as models;[j] but it does not appear that any of their writers grew eminent by translation; and, indeed, it was probably more frequent to translate for private exercise or amusement than for fame.

For three centuries past the art of translation has been gradually gaining ground throughout the literary world, both in frequency and elegance.[k] But the extension of this art, in both these respects, during the period under review, was so great and signal, that it must be considered as forming a remarkable feature of the age.—Translations from every polished language, into every other of this character, have not only become numerous, but have also attained, particularly within

j Every man in Rome who aspired to the praise of literature thought it necessary to learn *Greek*, and, therefore, stood in little need of translations. Translation, however, was not wholly neglected. Dramatic poems could be understood by the people in no language but their own; and the Romans were sometimes entertained with the tragedies of EURIPIDES, and the comedies of MENANDER. Other works were sometimes attempted: in an old scholiast there is mention of a *Latin Iliad*, and we have not wholly lost CICERO's version of the poem of ARATUS.—*Ellis*, ii No. 68.

k CHAUCER, the father of English poetry, was among the first translators into our language. He left a version of BOETIUS *On the Comforts of Philosophy*, which, though dull, prosaic, and inelegant, held, at that early period, a conspicuous place. Some improvement in the art of translation was made in the reign of Queen ELIZABETH; but still any thing like freedom and elegance was seldom attained. It was not till towards the close of the seventeenth century that this art began to be generally understood, and its proper principles reduced to practice. It is unnecessary to add, that, since that time many specimens of translation have been presented to the world, which are altogether unequalled in the history of preceding ages.

the last fifty years, a degree of refinement and excellence never before known. Versions of the Greek and Roman *Classics* have especially abounded during the period in question. And though this circumstance has contributed to render some knowledge of those great works of antiquity more popular, it has also been connected with the decline of Classic Literature, which was before mentioned. As elegant versions increased in number and circulation, it was natural that the originals should become gradually more neglected.

The number and excellence of modern translations may be considered as removing one of the impediments which bar the way to science, and as diminishing the inconvenience arising from the multiplicity of languages. But the length to which this practice is now carried will probably be found to discourage the study of languages, to diminish literary industry, and, of course, to render knowledge still more superficial.

14. The last century may further be denominated THE AGE OF LITERARY HONOURS. The practice of conferring the honours of literary institutions on individuals of distinguished erudition, commenced in the twelfth century; when the Emperor LOTHARIUS, having found in Italy a copy of the Roman Civil Law, ordained that it should be publicly expounded in the schools: and that he might give encouragement to the study, he further ordered, that the public Professors of this law should be dignified with the title of *Doctors*.[l] Not long afterwards the practice of creating Doctors was borrowed from the *Lawyers* by *Divines*, who, in their schools, publicly taught divinity, and con-

[l] The first person created a *Doctor*, after this ordinance of the Emperor, was BULGARUS HUGOLINUS, who was greatly distinguished for his learning and literary labour.

ferred *degrees* on those who had made great proficiency in this science."

From this period till the beginning of the eighteenth century, the conferring of literary honours was generally conducted by the respectable Universities of Europe, in a cautious, discriminating, and judicious manner. And even in the former half of the century under review, these honours were bestowed with much comparative reserve and deliberation.[n] But in the latter half of this period, the practice of literary institutions, in this respect, was materially different. As the students in these institutions became more numerous, and literary characters in general more common, Universities began to bestow their laurels with a more free and incautious hand. Genuine erudition and talents began to be less considered as qualifications, than station, popularity, or wealth. By these means, collegiate honours have become by far more cheap and common, during the period under review, than in any former age; but, as the natural consequence of this, they have also become less valuable and less esteemed.

The same remarks, in substance, apply to membership in literary and scientific Societies. Before the eighteenth century, honours of this kind were conferred on few or none but those who were eminent for learning or talents. But the popular diffusion of knowledge, and the artificial state of society which distinguish the last age, led to a

m This practice of conferring degrees in *Divinity* was first adopted in the universities of *Bononia*, *Paris* and *Oxford*.—See MATHER's *Magnalia Christi Americana*, b. iv p. 134.

n It is remarkable that the celebrated Dr. SAMUEL JOHNSON, when he had made great proficiency in literature, could not obtain the degree of *Master of Arts* from Trinity College, Dublin, though powerful interest was made in his behalf for this purpose. Instances of the failure of applications of a similar kind, made in favour of characters still more distinguished than JOHNSON was at that period, are also on record.

more unsparing distribution of honours of this kind; so that literary and scientific associations, at the close of the period which is the subject of this retrospect, consisted of a larger number of members than ever before, and more particularly of members of an unqualified and inefficient character.

15. The eighteenth century was pre-eminently THE AGE OF LITERARY AND SCIENTIFIC INTERCOURSE. It has been repeatedly remarked in the foregoing sheets, that the extension of Commerce, the discoveries in Geography, and the improvements in Navigation, in the Mechanic Arts, and in the modes of travelling, have led to a more general intercourse among mankind than in any former period. This remark may be extended to the republic of letters. In all preceding ages, learned men were in a great measure insulated. Those of one country knew little of those of another; and if any one wished to obtain more particular information concerning the treasures of knowledge possessed by an individual, or a nation, he was under the necessity of travelling into the country with which he sought to be acquainted, and of making personal inquiry for this purpose. And even after the art of printing was discovered, the intercourse between different parts of the learned world was so small, for more than two centuries, that some of the greatest benefactors to the cause of knowledge were little known out of their own country, and some but imperfectly even within these limits.

In the eighteenth century it was remarkably otherwise. The great extension of the art of printing in this period, joined with the circumstances above stated, have brought all classes of men in the literary world better acquainted with each other, and especially those who are devoted to the improvement of letters and science. The number

of literary Journals in every part of Europe has greatly increased within the last fifty years, their plans have been much improved, and their circulation prodigiously extended; learned individuals and societies now maintain a more free and friendly correspondence than formerly; the great improvements in Post-office establishments, within this period, have facilitated, to an unparalleled degree, the intercourse between distant parts of the earth;[o] foreigners of distinction are more frequently elected members of academies and other associations of a similar kind; Commerce, as its channels became multiplied and enlarged, furnished, at once, a convenient medium, and strong incentives to literary intercourse; the great increase in the practice of translating respectable works into all polished languages, has also served to render books of value, and their authors, more generally known:—to all which may be added, that the increased frequency and extent of modern travels, have been decidedly favourable to the correspondence of learned men, and to a knowledge of the works and characters of one another.

Such is an imperfect outline of the literary and scientific character of the century to which we have just bidden adieu. The picture is necessarily extensive and various; and the features, however unskilfully sketched, are presented with sufficient accuracy

o To illustrate this remark, two or three facts will be stated with regard to a single post-office establishment. In 1728 the London post arrived one day at Edinburgh with only one six-penny London letter, and that was addressed to the Post-Master-General on office business. The arrival of the post was then only once a fortnight; now it is six times a week. The post then employed ten days in travelling from London to Edinburgh, now it employs only three. Then the mail produced no revenue or nett profit to government, but was rather a continual charge; but the revenue of the post-office in Scotland, for the year ending in April, 1802, was £85,791 11s. 3d. sterling, or about 300,000 dollars. A corresponding increase in commercial and literary intercourse has taken place in the same period, in almost every cultivated part of the world.

to show that they are striking, and worthy of more minute examination. They are not, indeed, all calculated to give pleasure to the benevolent mind: some are distorted and disgusting, and a few heavy and uninteresting; but a much greater number are at once strong, highly illuminated, and pre-eminently engaging. If these be mingled, as in most pictures that are drawn true to nature, it is presumed that, in the present instance, the agreeable features predominate in a greater degree than in any delineation of a former period of similar extent.

Those, therefore, who have witnessed the close of the century under review, have indeed reason to congratulate themselves as an highly favoured generation. Though they have been pained with the sight of some degrading retrocessions in human knowledge, and almost stunned with the noisy pretensions of false philosophy, they have seen, at the same time, improvements in science, which their fathers, a century ago, would have anticipated with astonishment, or pronounced altogether impossible. They have seen a larger portion of human society enlightened, polished, and comfortable, than ever before greeted the eye of benevolence. They have, in a word, witnessed, on the one hand, the accession of honours to science, which it could boast in no former period; and, on the other, a degree of usefulness reflected from science to economy and art, no less conspicuous and unrivalled. The lapse of another century such as the eighteenth—a century that should bring with it an equal amount of discoveries and improvements, and present an equally rapid increase in the means, and in the diffusion of knowledge, would confer an aspect on systems of science, of which we, at present, are little qualified to judge. Such a century the nineteenth is likely to prove.

But let none indulge the vain dream that all darkness is about to be banished from the earth, and that human nature is rapidly hastening to perfection. "When the philosophers of the seventeenth century were first congregated into the Royal Society, we are told that great expectations were raised of the sudden progress of useful arts. The time was supposed to be near when engines should turn by a perpetual motion, and health be secured by the universal medicine; when learning should be facilitated by a real character, and commerce extended by ships which could reach their ports in defiance of the tempest. But that time never came. The Society met and parted without any visible diminution of the miseries of life. The gout and stone were still painful; the ground that was not ploughed brought forth no harvest; and neither oranges nor grapes could grow upon the hawthorn."[p] The same result, it may be confidently predicted, will appear at the close of the century on which we have now entered. The advocates of the *supremacy of Reason* and the *perfectibility of Man*, at every successive retrospect of human affairs, will find themselves refuted and confounded. And though Science, slowly advancing amidst the opposing hosts of prejudice, mistaken facts, and false theories, will reach far beyond its present limits, it must ever fall short of those extravagant expectations which, founded in ignorance of human nature, and discarding the dictates of experience, cannot avoid proceeding in error, and ending in disappointment.

Philosophers of the Nineteenth Century! your predecessors of the past age have bequeathed to you an immeasurable mass both of good and evil. Contemplate the labours and the progress of your

[p] *Idler*, vol. ii. No. 88.

fathers, and be animated in your course! Mark the mistakes of those deluded and presumptuous spirits who have misled and corrupted their species, and learn caution and wisdom from their errors! Behold how much has been done by patient inquiry, by faithful observation, by accurate experiment, and by careful analysis and induction; but how little by fanciful speculation, by the dreams of hypothesis, by vain boasting, or by waging war against Nature's God! Learn to distinguish that Philosophy which is the friend of truth, the handmaid of virtue, the humble interpreter of JEHOVAH's works, and the ornament of rational minds, from that *ignis fatuus* which shines but to deceive, and allures but to destroy. Remember that by giving yourselves up to the guidance of the latter, you can gain nothing but disappointment and shame; but that the sober, diligent, and persevering pursuit of the former is the plain and only road to those discoveries which will yet further enrich the sciences; to those improvements which will adorn life; to those practical arts which will add utility to ornament; and to that substantial advancement in knowledge which the enlightened and benevolent mind anticipates with a glow of delight.

ADDITIONAL NOTES.

NOTES ON CHAPTER XII.

Metaphysical Science not popular. p. 3.

THE disposition to undervalue and neglect metaphysical science is one of the most disgraceful characteristics of the last age. The influence of this disposition is more extensive and more mischievous than is commonly imagined. It is unfavourable to strength and accuracy of reasoning; has a most pernicious effect on morals and religion, and, consequently, on private and public happiness. When a man declares that he has no taste for metaphysical reading and inquiries, he pronounces a satire on his own mind; but when he ridicules those who have such a taste, he attempts to trample on the dignity and the happiness of his species. Such persons surely forget that some of the most important questions that interest us as men, as scholars, and as Christians, can only receive a correct solution by means of metaphysical principles.

DES CARTES. p. 3.

RENES DES CARTES was born at La Haye, in France, in 1596, and educated among the Jesuits. His doctrines concerning the human mind were first published about the year 1633, and soon began to excite much attention among the learned. For a number of years before his death he resided chiefly in Holland. Removing to Stockholm, in consequence of an invitation given to him by the Queen of Sweden, in 1649, he died there in 1650. It is universally known that the opinions taught by this great man long filled an immense space in the philosophical world.

LOCKE. p. 4.

JOHN LOCKE was born at Wrington, near Bristol, in South-Britain, in the year 1632. He was educated at the University of Oxford, which he entered in 1651. After leaving

the university he studied physic, and engaged for a time in the practice of this profession. In 1664 he went to Germany, as secretary to Sir WILLIAM SWAN, English envoy to the Elector of Brandenburgh. In 1670 he began to form the plan of his *Essay on the Human Understanding*, which he published in 1690. He died in 1704. Of the vigorous intellect, the profound and extensive views, the great learning, and the excellent character of this celebrated "master builder" in science, it is unnecessary to speak. The above dates are given merely for the convenience of reference.

Errors and Tendency of LOCKE's *Philosophy.* p. 6.

While ample justice is done to Mr. LOCKE's genius; while the splendid service which he rendered to the philosophy of mind is readily acknowledged; and while his intentions are allowed to have been unexceptionably pure; yet it may be doubted, whether his writings have not done more to promote a spirit of scepticism than those of any other individual since his time. This effect has been produced, not only by some of his doctrines, but also by the general spirit of his philosophy.

In tracing all our ideas to two sources, *sensation* and *reflection*, he imposed on the mind of the inquirer by a plausible, but most deceitful appearance of simplicity. It is no less true in the philosophy of the mind than in that of the physical sciences, that attempts to simplify and generalize may be carried not only further than truth will warrant, but also to a seductive and mischievous length. Mr. LOCKE defines *reflection* to be "the notice which the mind takes of its own operations, and the manner of them." This definition, besides being rather descriptive of *consciousness* than of *reflection*, embraces a more important error. To say that all our ideas are ideas either of sensation or reflection, is to say that we can think of nothing but an object of sense, or an act of our own minds. But is this true? According to this account, what shall we say to the various exercises of memory, of imagination, &c.? This philosopher, also, in representing *ideas*, not as thoughts in the mind, nor yet the external objects of thought; but as intermediate, occult *images*, which alone the mind contemplates, gave countenance to a principle from which the most dangerous and absurd inferences have since been made. The whole controversy about *innate*

ideas, if Mr. LOCKE uniformly employs this phrase in the same sense, is a war of words. If an idea be an object of thought which intervenes between the mind and the thing perceived, none can, or ever did, suppose that ideas are *innate* in this sense. To assert that the mind has *such* innate ideas, would be to represent it as thinking before it thinks, and acting before it acts.—From these and other erroneous principles taught by this great philosopher, it soon became apparent that doctrines from which he would have shrunk with abhorrence must necessarily result; and the history of metaphysical science since his time evinces how mischievous is error, when supported by the authority of such a mind as that which produced the *Essay on the Human Understanding*.

HUME. p. 9.

DAVID HUME, the celebrated metaphysician and historian, was born in Edinburgh, in the year 1711. He was designed for the law by his friends, but having no inclination himself to that profession, he applied to business, and in 1734 became a clerk to a merchant at Bristol. Soon afterwards he went to France, where he wrote his *Treatise of Human Nature*, which was published at London in 1739. Between this period and his death he travelled into Italy, Germany, and again into France. His *Moral Essays* were published in 1742; his *Political Discourses*, and his *Inquiry concerning the Principles of Morals*, in 1752; his *Natural History of Religion* in 1756; and his *History of England* was completed in 1761. He died in 1776.

Philosophy of HUME. p. 9.

Mr. HUME taught that all the perceptions of the human mind resolve themselves into two classes, viz. *impressions* and *ideas*; comprehending under the former all our sensations, passions, and emotions; and under the latter the feint images of these, when we remember or imagine them. Our *ideas*, in the opinion of this philosopher, are all copied from our *impressions*, the former differing from the latter only in being weaker perceptions. "He adopted LOCKE's account of the origin of our ideas, and from that principle inferred, that we have no idea of substance, corporeal or spiritual; no idea of

power; no other idea of a cause, but that it is something antecedent, and constantly conjoined to that which we call its effects; in a word, that we can have no idea of any thing but our sensations, and the operations of mind of which we are conscious," and that nothing else exists.—REID's *Essays*, II.

But though Mr. HUME's fundamental doctrines were thus extravagant and absurd; and though his philosophy, falsely so called, leads to the most unlimited scepticism, as he doubtless intended it should; yet both he and Bishop BERKELEY rendered important service to metaphysical science. The mode in which they discussed their very errors and absurdities contributed to confer on this branch of philosophy a perspicuity and precision, which are of the utmost importance in studying the human mind.

On the subject of *causation* Mr. HUME has thrown new light. Some of his reasonings, indeed, on this subject, were suggested by MALEBRANCHE, and, even at a still earlier period, by BACON and HOBBES. Ideas, also, similar to some of those which he advanced, were thrown out by BARROW, BUTLER, BERKELEY, and others. But Mr. HUME has the merit of having first clearly shown to philosophers, that our common language, with respect to cause and effect, is merely analogical; and that, if there be any links among physical events, they must for ever remain invisible to us. Nor is the justness of this doctrine to be doubted on account of the sceptical inferences which its author has deduced from it: his error, in this case, does not so much lie in his premises as in the conclusions which he draws from them. In fact, if this part of his system be admitted; and if, at the same time, we admit the authority of that principle of the mind which leads us to refer every event to an efficient cause; his doctrine conducts us to a result more sublime, more favourable to piety, and more consistent with sound philosophy, than the opinion commonly held on this subject.—See STEWART's *Philosophy of Mind*, Notes C and D.

Dr. REID. p. 10.

THOMAS REID, D. D. was born at Strachan, in Kincardineshire, North-Britain, April 26, 1710. He was educated at the University of Aberdeen, and for a number of years held the pastoral charge of the Congregation of New-Machar, in the neighbourhood of that city. He was chosen Professor

of Moral Philosophy in the University of Glasgow in 1763. His *Inquiry into the Human Mind on the Principles of Common Sense*, was published in 1764; his *Essays on the Intellectual Powers of Man*, in 1785; and his *Essays on the Active Powers*, in 1788. He died October 7, 1796, in the 87th year of his age. Few men, since the days of LOCKE, have discovered talents more eminently fitted to explore the regions of mind than this philosopher.

Dr. REID's *Philosophy.* p. 11.

Besides the doctrine of *perception*, stated in the above-mentioned page, Dr. REID's system is distinguished by a view of the powers of the mind, or of the sources of our ideas, which differs considerably from the systems of his predecessors. Instead of dividing the intellectual powers into *simple apprehension*, *judgment* and *reasoning*, as the greater number of metaphysical writers have done since the days of ARISTOTLE, he considers this division as far from embracing all the phenomena of mind. He does not, indeed, attempt a complete enumeration of all the powers of the human understanding; but supposes that there are at least *nine*; viz. 1. The powers we have by means of our external senses. 2. Memory. 3. Conception. 4. The powers of resolving and analysing complex objects, and compounding those which are more simple. 5. Judging. 6. Reasoning. 7. Taste. 8. Moral perception. 9. Consciousness.—Each of these he supposes to be an original and distinct power, not resolvable into any one or more of the rest.

This may be pronounced an important step in the progress of metaphysical science. Incalculable injury has been done to various branches of philosophy by injudicious attempts to reduce numerous facts and principles to one or two classes, when they do not admit of such plausible simplification, and when they can be considered with advantage only in detail. The progress of medical science has been retarded by too close an adherence to systems of nosological arrangement. Chemical philosophy may also be said to have been disserved by premature attempts to form a regular classification of its phenomena. Metaphysicians have fallen into a similar mistake. One writer on the human mind tells us that all its operations may be explained by referring them to *sensation* and *reflection*. Another would derive all our ideas from *sensation* only; while

a third would account for every intellectual exercise, by ascribing them to *vibrations* of a stronger or weaker kind. Though some of these writers approach much nearer to the true doctrine of mind than others, they are all erroneous; and many of their mistakes arise from aiming at a simplicity of which the subject does not admit. The works of the Author of Nature can be contemplated by us only in detail: and the process of generalization, though always pleasing to human pride, and sometimes, in a degree, just and useful; yet, when carried beyond a certain length, is, doubtless, calculated to deceive the inquirer, and to countenance the most mischievous errors.

Dr. REID was enabled to present the improved views of the science of mind, which his works contain, by pursuing a method of inquiry which he first applied to this subject. The inductive plan of investigation, recommended by BACON, had been long before applied to the physical sciences; and a few writers, from the beginning till the middle of the eighteenth century, had suggested the propriety of attempting to explore, on similar principles, the phenomena of the intellectual world. But Dr. REID is asserted to have been the first person "who conceived justly and clearly the analogy between these two different branches of human knowledge; defining with precision the distinct provinces of Observation and of Reflection, in furnishing the *data* of all our reasonings concerning Matter and Mind; and demonstrating the necessity of a careful separation between the phenomena which they respectively exhibit, while we adhere to the same mode of philosophizing in investigating the laws of each."—STEWART's *Life of* REID, p. 48.

Dr. REID's *Use of the Phrase Common Sense.* p. 12.

"One of the first writers who introduced the phrase *Common Sense* into the technical or appropriate language of Logic, was Father BUFFIER, in a book, entitled, *Traité des Premières Veritès.* It has since been adopted by several authors of note in Great-Britain, particularly by Dr. REID, Dr. OSWALD, and Dr. BEATTIE; by all of whom, however, I am afraid, it must be confessed, it has been employed without a due attention to precision. The last of these writers uses it to denote that power by which the mind perceives the truth of any intuitive proposition, whether it be an axiom of ab-

stract science, or a statement of some fact resting on the immediate information of consciousness, of perception, or of memory; or one of those fundamental laws of belief which are implied in the application of our faculties to the ordinary business of life. The same extensive use of the word may, I believe, be found in the other authors just mentioned. But no authority can justify such a laxity in the employment of language in philosophical discussions: for if mathematical axioms be (as they manifestly and indisputably are) a class of propositions essentially distinct from the other kinds of intuitive truths now described, why refer them all indiscriminately to the same principle in our constitution? If this phrase, therefore, be at all retained, precision requires that it should be employed in a more limited acceptation; and accordingly, in the works under our consideration, it is appropriated most frequently, though by no means uniformly, to that class of intuitive truths which I have already called *fundamental laws of belief*. When thus restricted, it conveys a notion unambiguous at least, and definite; and, consequently, the question about its propriety and impropriety turns entirely on the coincidence of this definition with the meaning of the word as employed in ordinary discourse."

"I have said that the question about the propriety of the phrase *Common Sense*, as employed by philosophers, must be decided by an appeal to general practice: for although it be allowable, and even necessary, for a philosopher to limit the acceptation of words which are employed vaguely in common discourse, it is always dangerous to give to a word a scientific meaning essentially different from that in which it is usually understood. It has, at least, the effect of misleading those who do not enter deeply into the subject; and of giving a paradoxical appearance to doctrines which, if expressed in more unexceptionable terms, would be readily admitted."

"It appears to me that this has actually happened in the present instance. The phrase *Common Sense*, as it is generally understood, is nearly synonymous with *Mother-wit;* denoting that degree of sagacity (depending partly on original capacity, and partly on personal experience and observation) which qualifies an individual for those simple and essential occupations which all men are called on to exercise habitually by their common nature. In this acceptation it is opposed to those mental acquirements which are derived from a regular education, and from the study of books; and refers not to the speculative convictions of the understanding, but to that

prudence and discretion which are the foundation of successful conduct. Such is the idea which POPE annexes to the word, when, speaking of good sense, (which means only a more than ordinary share of common sense) he calls it

> "The gift of Heaven,
> And though no science, fairly worth the seven."

"To speak, accordingly, of appealing from the conclusions of philosophy to common sense, had the appearance, to title-page readers, of appealing from the verdict of the learned to the voice of the multitude; or of attempting to silence free discussion, by a reference to some arbitrary and undefinable standard, distinct from any of the intellectual powers hitherto enumerated by logicians. Whatever countenance may be supposed to have been given by some writers to such an interpretation of this doctrine, I may venture to assert, that none is afforded by the works of Dr. REID. The standard to which he appeals is neither the creed of a particular sect, nor the inward light of enthusiastic presumption; but that constitution of human nature without which all the business of the world would immediately cease; and the substance of his argument amounts merely to this—that those essential laws of belief to which sceptics have objected, when considered in connection with our scientific reasonings, are implied in every step we take as active beings; and, if called in question by any man in his practical concerns, would expose him universally to the charge of insanity."—STEWART's *Life of* REID, p. 118—120.

LEIBNITZ. p. 14.

GODFRED WILLIAM LEIBNITZ was born at Leipsic, in Saxony, in the year 1646. He was a prodigy of learning, had an astonishing memory, and possessed great vigour and versatility of talents. His works are very voluminous. His doctrines concerning the mind may be gathered from his *Theodicea*, published towards the close of the seventeenth century. The system of philosophy taught in this work was designed partly in emendation of the Cartesian, and partly in opposition to the Newtonian. LEIBNITZ retained the subtle matter, the universal plenitude, and the vortices of DES CARTES, but differed in some respects from that philosopher. But against Sir ISAAC NEWTON his scientific warfare was principally directed.—He died in the year 1716.

WOLFE. p. 17.

CHRISTIAN WOLFE, a native of Breslau, in Germany, was born in the year 1679. He was a follower of LEIBNITZ, and wrote largely in defence of his philosophical opinions. At the age of 26 WOLFE had acquired so much reputation as to be appointed Professor of Mathematics in the University of Haile, and soon afterwards Professor of Philosophy in general in the same institution. His famous work, entitled, *Thoughts on God, the World, and the Human Soul*, in which his metaphysical doctrines are delivered, was published in 1719. Accused of heresy, on account of his holding the doctrine of *necessity*, and some other obnoxious opinions, he was banished from the Prussian dominions in 1723. For a number of years after this event Germany was filled with disputes concerning his opinions, and the treatment which he had received; and the names of *Wolfians* and *Anti-Wolfians* were every where heard. In 1732, the current of public opinion turning in his favour, he was recalled from his exile, and appointed Vice-Chancellor of the University of Halle. In 1745 he was raised to the office of Chancellor of the University, and created a Baron, by the Elector of Bavaria.—He died in 1754.

STAHL's *Doctrine concerning the Mind.* p. 17.

Contemporary with WOLFE was the celebrated GEORGE ERNEST STAHL, Professor of Medicine in the University of Halle. He was distinguished not so much by any new doctrine concerning the nature and powers of the mind (for it is even uncertain what were the opinions which he held on this subject), as by entertaining the singular idea, that the soul presides over, and governs the whole economy of the body, both in health and disease. To the will he referred all the vital functions, and contended, that if there be instances in which we will an effect, without being able to make it an object of attention, it is possible that what we call vital and involuntary motions may be the consequences of our own thought and volition. He supposed that the influence of the soul is extended to every part of the system by means of the nerves; and that, when their action is impeded or deranged, disease is the unavoidable consequence. These opinions of

STAHL were adopted, particularly by a number of medical philosophers in different parts of Europe; but at the close of the century there were few or none who professed an adherence to them.

HARTLEY's *Philosophy*. p. 17.

It is asserted, in the above-mentioned page, that Dr. HARTLEY derived his doctrine of *vibration* from NEWTON. The truth is, that Dr. WILLIAM BRIGGS, who instructed NEWTON in anatomy, appears to have been the first who taught the doctrine of nervous vibrations. This he did in his *Nova Visionis Theoria*, published in 1682. NEWTON, taking the idea from him, suggests it, not as a fixed opinion, but as a modest query (see 23d query, subjoined to his Optics), whether "vision is effected chiefly by the vibrations of an elastic medium, excited in the bottom of the eye by the rays of light, and propagated along the solid, pellucid, and uniform capillaments of the optic nerve? And whether hearing is effected by the vibrations of the same or of some other medium, excited by the tremor of the air in the auditory nerves, and propagated along the solid, pellucid, and uniform capillaments of those nerves?" And so with regard to the other senses. What was thus suggested by NEWTON became a fundamental principle in HARTLEY's system, and has been considered by him and his followers as placed on the high ground of *demonstration*.

KANT's *Philosophy*.

IMMANUEL KANT was born in 1724, and is still living. His philosophy has excited almost as much attention as that of WOLFE did eighty years ago, and has called forth the talents of many of the most eminent men of Germany, for and against it. Besides those who have been already mentioned as distinguished partizans in this controversy, there are some others worthy of notice. JOH. GOTTH. FUHTE, of Jena; Professor BORN, of Leipsic; Professor BECK, of Rostock; and the Rev. GEO. SAM. MELLIN, of Magdeburg, have written largely and ably in defence of the Kantian doctrine; while FEDER, EBERHARD, Professor TIEDEMANN, and Professor MAAS, have been equally conspicuous, zealous and able in opposition to this far-famed system.

HELVETIUS. p. 28.

CLAUDE ADRIAN HELVETIUS was born in Paris, in the year 1715. In the year 1758 he produced his first work, entitled, *l'Esprit*, which, on account of its *atheistical* principles, was condemned by the Parliament of Paris. The odium which he incurred hereby induced him to visit England in 1764, and from thence he went to Prussia, where he was very favourably received by the king. On his return to France he led a retired life in the country, and died in 1771. His treatise on *Man*, formed on the same principles with his first work, was published a short time before his death. He wrote a poem, in six cantos, entitled, *Le Bonheur*, which was published in 1772. HELVETIUS may be regarded as one of the earliest and most conspicuous of the advocates for that system of *materialism*, and of *atheistical reveries*, usually called the *new philosophy*.

EDWARDS. p. 30.

An ingenious and learned friend, on reading the assertion, in the above-mentioned page, that "President EDWARDS appears to have been the first *Calvinist* who avowed his belief so fully and thoroughly in the doctrine of moral necessity as his book indicates," made the following remarks:

"You have mistaken the fact with reference to President EDWARDS. His great mind was, indeed, nobly exercised in the defence of truth. He appears an original in the invention of arguments against his adversaries, but not in discovering the truths which he states respecting the liberty of the Will. The connection between motives and volitions, the liberty of choice in man, and the necessity of the futurition of human voluntary actions; in short, every part of moral necessity consistent with free agency, was embraced and understood before his day, although not so successfully demonstrated as by him. You should have taken notice of his son, JONATHAN EDWARDS, D. D. late President of Union College, in Schenectady. He was an able metaphysician. Few works in the English language discover more penetration than his book on the *Liberty of the Will*."

On the reputation of these two American divines, the character of our country, with respect to metaphysical science,

may honourably rest. The father, considering the circumstances in which he was educated and spent his life, was truly a prodigy of talents. For acuteness and extent of comprehension, and fervour of piety, he has had but few equals belonging to any age. The son very much resembled his father, in talents, in piety, and in the circumstances of his life.

Materialism. p. 31.

The same friend who was mentioned in the preceding note, communicated the following remarks on the subject of *Materialism*, which I cannot deny myself the pleasure of inserting at length in this place.

"Numerous are the advocates of the material system. In order to enforce our belief in its doctrines, conjecture and ingenuity have done their best. And, after all, great must be the faith, or rather the credulity, of those who can believe it.

"If we are to account for all the varieties of thought upon mechanical principles, it will be necessary to consider the subject in the light of known mechanical laws. Whether we adopt the hypothesis that the nerves are like fiddle-strings, or that they are full of a medullary substance capable of vibrations, the fundamental principle of materialism is one. 'The vibrations of matter produce thought.'—On this theory it may be observed—

"1. It never has been proved that there *are* such vibrations. It is a mere hypothesis. It may serve for speculation; but to built a system on such a basis is credulity, not philosophy.

"2. Granting, for argument's sake, the existence of vibrations, there is no necessary connection between vibration and thought. If there is not, there must be another hypothesis introduced, viz. 'There *may* be a connection between vibrations and thought.' Upon this hypothesis I should be glad to see Dr. PRIESTLEY or Dr. DARWIN give us a poem or dissertation upon the thoughts of the *Harpsichord* while the strings are vibrating at the touch of a lady's finger; or upon the grave speculations of a mill-pond while the boys at play are throwing stones into it.

"3. Suppose I again grant, for further argument's sake, this hypothesis to the materialists. It will be necessary to show that, in vibrations, considered abstractedly, there is such a variety in kind and degree as corresponds exactly with all the varieties of thought.

"There are at least *ten* distinct intellectual powers. Not one of these can be accounted for by one or more of the others. There are, 1. The powers which we have by means of our five senses. 2. Attention. 3. Memory. 4. Abstraction. 5. Judging. 6. Reasoning. 7. Taste. 8. Powers of moral perception. 9. Consciousness. 10. Conception. Each of these is distinct, and a distinct source of ideas. The active powers, moreover, are numerous, and the mind, so constituted, is capable of a vast variety of thoughts, differing in kind and degree. Do vibrations afford an equal variety? No: it is not possible that there should be any more than two kinds of vibrations in a uniform elastic medium. 1. They may be quick or slow. 2. They may be strong or weak. These kinds admit of various degrees; and this is all the variety of which the laws of matter (however finely organized the machine) will admit. Now, he must certainly be ignorant of his own mental operations, or of the laws of motion in matter, who can be persuaded of an exact correspondence of the one to the other. Certainly credulity never appeared more conspicuous in the devoters of Popish superstition than it does in the advocates and believers of the material system!

"Shall vibrations in an elastic medium be supposed to account for all the original powers, intellectual and active? Put all these out of the question except one class, viz. *the powers we have by our external senses*, and even then there is a manifest disparity. Had we no sensations but those of *hearing*, this theory would not be so contemptible. There *is* a correspondence between vibrations and sound. These sensations will themselves appropriate all the varieties of vibrations; and even then it will be necessary to conceive of some sentient being, capable of those sensations, distinct from all the vibrations which produce them.

"Hearing, however, is but one of our senses; and its sensations are the most simple: they differ only in degree. By each of the other four we have a variety of sensations which differ specifically as well as in degree. Who can name the varieties of colour which we perceive by the eye? Tastes and smells are innumerable. They differ specifically, and each is capable of all degrees of strength and weakness. But how shall we find in vibrations a variety corresponding to the immense variety of sensations which we have from sight, hearing, taste, smell, and touch? And how shall they account for all the ideas which we have from all the other sources and powers of thought, upon mechanical principles? Com-

mon sense, reason and philosophy, are in a lamentable condition when such theories gain ground among men. He who would be a materialist in the nineteenth century, would have been a believer in the doctrine of transubstantiation in the twelfth."

Modern Materialists. p. 33.

The principal materialists of the eighteenth century differed, in some of the details of their opinions, from those philosophers of preceding times who held the same general doctrine. EPICURUS supposed the soul of man to be a material substance, but a *very refined and attenuated kind of matter.* He taught that this substance, notwithstanding the extreme subtlety of its texture, is composed of four distinct parts; *fire*, which causes animal heat; an *ethereal principle*, which is moist vapour; *air*; and a fourth principle, which is the *cause of sensation.* This sentient principle he supposed to differ essentially from the three former, but to be, like the rest, corporeal, because it is capable both of acting and being acted upon by bodies. From the union of the soul, thus constituted, with the body, he believed life and sensation to result. Something like this seems to have been the opinion of almost all the ancient materialists. SPINOZA and HOBBES held a system of materialism quite as gross as any of their predecessors; for they seem to have thought that *every* material atom is, in a greater or less degree, animated or endowed with sensation. Dr. HARTLEY (if he be ranked in this class, and it is not easy to give him any other place) sometimes appears to recognize a sentient principle, which, if not wholly immaterial, differs from any ideas which he seems to have formed of ordinary matter. Dr. PRIESTLEY's opinions on this subject, considered as a connected system, are new. He denies that there is any ground for making a distinction between the soul of man and the body; supposing the whole human constitution to be made up of one homogeneous substance. He denies that we have any evidence that the Deity himself is immaterial, in the commonly received sense of this word; and, finally, by the adoption of Father BOSCOVICH's theory, he so refines and *spiritualizes* matter, as to make it an extremely different thing from that gross and impenetrable substance which it is generally represented to be. He differs from preceding materialists, then, in his views of

the *nature* of matter, and in rejecting the idea entertained by most of them, that the sentient principle is a species of matter *peculiarly refined and attenuated.*

Dr. DARWIN, in his celebrated work, entitled *Zoonomia*, has offered a physiological theory of mind, which, though more seductive, and, consequently, more dangerous than some others, may be said to contain more crude and inconsistent metaphysics than almost any modern system of materialism of equal reputation. The greater part of his opinions on this subject have been borrowed from other writers; so that, as a pneumatologist, he has little claim to originality, excepting in the method of combining and arranging his doctrines. The genius of the author, indeed, has given to his metaphysical errors a popular and plausible aspect; and they will probably lead astray thousands of superficial and inconsiderate readers; but they can scarcely mislead inquirers of a more discerning character.

Dr. DARWIN supposes that the sentient principle, or the mind of man, is a *subtle fluid*, which he denominates *Sensorial Power*, or *spirit of animation.* This Sensorial Power he represents as secreted in the brain, and in the medullary part of the nerves, where it especially resides, and from which it extends to every part of the body, without being cognizable by our senses, except in its effects. He supposes that the *oxygen* which enters into combination with the blood in respiration, affords the material for the production of Sensorial Power; that this fluid is liable to be accumulated or diminished by various circumstances; that it is constantly expended by stimuli, and is probably too fine to be long retained in the nerves after its production in the brain; and, finally, that it is capable of assuming the property of solidity, or divesting itself of this property at pleasure.

This Spirit of animation, or Sensorial Power, according to the theory under review, produces contractions or motions in the animal fibre, and these fibrous motions, thus occasioned, are the immediate cause of all our ideas; an idea being defined "a contraction, or motion, or configuration of the immediate organs of sense." This Spirit has *four* different modes of action; or, in other words, the mind possesses *four* different faculties, which are occasionally exerted, and cause all the contractions of the fibrous parts of the body. These are, 1. The faculty of causing fibrous contractions in consequence of the *irritations* excited by external bodies. 2. The faculty of causing contractions in consequence of the

sensations of pleasure or pain. 3. The faculty of causing contractions in consequence of *volition*. 4. The faculty of causing contractions in consequence of the *associations* of fibrous contractions with other fibrous contractions, which precede or accompany them. These four faculties, during their inactive state, are termed *irritability*, *sensibility*, *voluntarity*, and *associability*; in their active state they are termed *irritation*, *sensation*, *volition*, and *association*. (See chap. iv. of this work.) Upon these principles Dr. DARWIN accounts for all the phenomena of mind. *Memory*, according to this author, embraces a class of ideas arising from volition and association. *Imagination* includes those ideas which were originally excited by irritation, and become, in like manner, more frequently causable by sensations of pleasure or pain. Ideas of *Abstraction* and of *Reflection* are partial repetitions of former perceptions, by the repetition of a certain stimulus. (See *Zoonomia*, vol. i. § 5, 6, 14, 15.)—It will readily be perceived that this theory of mind has not only all the exceptionable characteristics of that of Dr. HARTLEY, but that it is liable to the additional charges of being more complex and less consistent.

As this theory makes an important part of a medical work, which is highly popular, and has an extensive circulation in the United States; and as there is reason to suppose that many superficial thinkers have been seduced into the adoption of its principles by the plausible aspect which it wears, the following remarks are respectfully submitted to the reader, not as containing a full refutation of the *Darwinian* doctrines, but as suggesting some hints worthy of the consideration of those who are disposed to embrace them.

1. Dr. DARWIN sets out with a singular inconsistency. He declares that, by the *Spirit of Animation*, or *Sensorial Power*, he means only that animal life which mankind possess in common with brutes, and, in some degree, even with vegetables; and that he leaves the consideration of the immortal part of us, which is the object of religion, to those who treat of revelation. Yet he afterwards proceeds, in the same work, to show how the Sensorial Power produces ideas of memory, imagination, abstraction, &c. which have always been considered as belonging to the rational and immortal mind of man, by all who believe that such mind exists. Does Dr. DARWIN mean to express an opinion that man possesses the noble powers of reasoning, judgment, imagination, ab-

straction, memory, reflection, &c. in common with brutes? or does he suppose that the soul, the immortal part, possesses intellectual powers of a different kind?

2. It may be observed that this theory embraces a general doctrine, which is gratuitously assumed, and is altogether unphilosophical. Its object is to reduce all the energies of intellectual and animal life to the operation of an invisible fluid secreted by the brain, and existing in every part of the body. But does this fluid exist? It is surely unphilosophical to take for granted the existence of a substance, and then to proceed, on the supposition, to a long train of inferences, the validity of which must all rest on the first assumption. Besides, this supposed fluid gives no real aid to the inquirer when admitted. It explains nothing. The whole business of *causation* is as much in the dark, after all this parade of developement, as ever. Unwilling to confess himself ignorant of any thing, Dr. DARWIN endeavours to amuse his own mind, and the minds of his readers, with *contractions*, *fibrous motions*, *appetencies*, and other apologies for ignorance. But these words convey no distinct ideas to the mind; they enable us to make no real progress in the investigation of truth. In this writer's philosophical works the poet too often appears with all his parade of fictions. Suppositions are assumed for facts; conjecture is brought in aid of hypothesis; and from these materials, with all the formality of legitimate deduction, a system is formed. But when the good old rule of philosophizing—"The causes must be both true and sufficient to explain the phenomena"—is rigidly applied, many of his most important postulates are found either utterly inadmissible, or to possess, if admitted, only a fictitious value. The *sensorial power* of this ingenious theorist, as applied to explain the phenomena of mind, too much resembles the *occult qualities*, the *phantasms*, and the *essential forms* of the schoolmen, to be respectfully viewed by a practical philosopher.

3. Several of the doctrines which enter into this theory are not consistent with themselves. Dr. DARWIN sometimes uses the word *idea* to signify the organic affection, and sometimes the mental affection; or, to use his own language, it sometimes denotes the *fibrous motion*, and at others the *sensorial motion*; that is, it signifies both the *cause* and the *effect*. This inaccurate use of an important metaphysical word is the source of much loose, perplexed, and inconsistent reasoning.

Again; the spirit of animation is said to have the power

of producing certain motions in the animal fibre. But if the power of producing fibrous contractions be inherent in this spirit (and such self-operating power is certainly sometimes ascribed by Dr. DARWIN to the Spirit of Animation, especially in cases of memory, &c.), then that portion of it which is in immediate contact with the fibre must induce contraction before the application of stimuli, unless the power be counteracted. But, in this case, nothing is supposed to counteract its action; and as the effect is not produced, where is the inherent power of this subtle fluid? If we say that the sensorium does not essentially possess the power, but excites motions of the fibres merely by its own motion, we subject the phenomena of life and mind to the principles of mechanics; but it is admitted by Dr. DARWIN that the effects bear no mechanical proportion to their causes.

Further, Dr. DARWIN contends that fibrous motions constitute our notions or ideas of the qualities of external things. To illustrate this an argument is drawn from the luminous appearance in the eye, when it is struck in the dark, or when a corner of the ball is pressed. This effect, he supposes, is occasioned not by the presence of light, but by mere pressure; a supposition which, if admitted, must set aside his theory of ideas. The Sensorial Power in the eye has the same susceptibilities as that in the nerves of touch, and the fibres of both organs are equally contractile. They differ only in the *means* of irritation; the structure of the external organ of the one being peculiarly adapted to the transmission of light. But if pressure can excite the sensation of a flash, this stimulus is not, like that of light, confined to the eye. It must excite similar fibrous motions of the *rete mucosum*, and the sense of touch will thus become a medium of vision. But this, though an unavoidable inference from Dr. DARWIN's principles, is contrary to his conclusions.

Another gross inconsistency appears in the account which this theorist presents of the qualities belonging to Sensorial Power. To say that a substance can assume the property of solidity, and lay it aside; that it can occupy space, and cease to occupy it at pleasure, is to say that it can, at pleasure, exist, and cease to exist. The Sensorial Power is constantly represented as a material substance, at sometimes solid and impenetrable, and at other times not so. Now, if solidity belong to matter at all, it must be essential to it under every variation of form, and can only cease to exist in the destruction of the substance. But this is not the whole of the difficulty:

Dr. DARWIN tells us (vol. ii. *Additional Notes)*, that the doctrine of immaterial ideas is a "fanciful hypothesis, like the stories of ghosts and apparitions, which have so long amused the credulous, without any foundation in nature;" yet the Sensorial Power is sometimes disrobed of its materiality. Is this consistent with the other doctrines concerning the Spirit of Animation which this writer teaches? When the Sensorial Power is led to assume spirituality, it is incapable of being acted on by matter, as he expressly declares; consequently it ceases to exist, for it is no longer capable of acting or of being acted upon; and, of course, in all such cases, life is suspended or destroyed. We have not, however, yet exposed, in its full extent, the inconsistency of Dr. DARWIN on this subject. He observes that, although the Sensorial Power may sometimes disrobe itself of solidity; yet, whenever it communicates motion to the fibres, or is itself excited by their motion, it must necessarily be solid or impenetrable; because, as the muscular fibres approach each other in the contraction of a muscle, and as nothing can act where it does not exist, the approach of the particles can be explained only on the supposition of an intermediate agent. But if sensorial power, during its exertion, be solid and impenetrable, like the fibres on which it acts, the supposition of its existence will not render at all more explicable the phenomena of muscular contraction. For the Sensorial Power between the particles of a fibre is in contact with those particles, or it is not. If it be, then the particles of the fibre cannot approximate, because there is no vacant space, and the Sensorial Power is not penetrable. The whole fibre, with its Sensorial Power, forms one connected substance, and is thence incapable of motion. But if the Sensorial Power be not in contact with the particles of the fibre on which it acts, it will be necessary to suppose the existence of another intermediate agent (a *subtle fluid* no doubt), as we are repeatedly assured that nothing can act where it does not exist.

The doctrine of *association* is an important part of Dr. DARWIN's theory; but upon the principles of this theory association is impossible. Association is a particular quality or state of Sensorial Power; but this power, or, which is the same thing, the spirit of animation, is in a perpetual state of flux. It is constantly secreted and expended, being too subtle to remain any length of time in the system. The particles of this spirit, then, cannot form any habitual connections or associations with each other, because, in the very act of

association, they are expended and destroyed. According to any laws of matter with which we are acquainted, they can only be connected by means of repeated simultaneous action; but in their first action, according to this theorist, they expire, and their places are supplied by new particles, which, like them, can only act once and fly off. The fibres, indeed, remain, amidst this continual flux of the vital fluid; but without it they possess no other qualities than those of inanimate matter.

Once more; Dr. DARWIN allows that stimuli sometimes exist in contact with Sensorial Power, without producing corresponding effects. He accounts for this fact by supposing that, from the inconvenience of obeying certain irritations, we learn to suffer the stimulating material to accumulate till it disagreeably affects us, and that the subsequent action is then in consequence of this disagreeable sensation. But this is inconsistent with his other doctrines. Sensations cannot in this manner produce contractions, if we adhere to his theory of the origin of ideas. What does he mean by saying, *we suffer the stimulating material to accumulate?* The sensorial power exists in contact with the requisite stimulus: Is there a third principle, a *presiding mind*, in his creed, which regulates their action?

These are a few of the inconsistencies with which this celebrated work abounds. In no respect, perhaps, does the author display more loose thinking, and more glaring inconsistency, than in the manner in which he speaks of *Sensorial Power*. Though he expressly represents the faculties of the sensorium as different states of the same vital fluid, or spirit, and though this doctrine forms the ground-work of his reasoning; yet he sometimes speaks as if these faculties were different substances. Sensorial power is, with him, at one time solid and impenetrable, and at another spiritual and penetrable. And though he expressly ridicules the idea of an immaterial sentient principle in the mind, yet he frequently speaks in a manner which is altogether unintelligible without supposing some such principle, which is different from the external stimulus, the animal fibre, and the sensorial power, and which regulates their reciprocal actions.

4. This theory is insufficient to account for the phenomena which it is intended to explain; and it is opposed to facts.

The author supposes that the spirit of animation exists in four distinct states, to which he gives four names, as already mentioned. Now, this spirit, as has been repeatedly before

stated, is a material substance, and must, of course, be subject to the laws of matter. But is matter, while it retains its nature, susceptible of these radical and essential changes? Its form may be changed; the relation of its particles may vary; but its essential properties must remain the same. Notwithstanding this, the sentient principle, according to Dr. DARWIN, is continually undergoing changes of the most radical kind. The spirit of animation in *volition* differs from the spirit of animation in *sensation*, not merely in the position of its particles, but in its nature. We are elevated with rapture, or writhe in agony; we revolt with horror from an object, or hasten to meet it with joy; we are alternately actuated by hope and fear, desire and aversion, love and hatred, joy and sorrow; in short, there is a diversity almost endless in the modes of our feelings, and in the characters of our ideas. Can all these different and opposite states of mind be accounted for by any supposable changes in one homogeneous fluid? Or is it possible for that fluid to retain its nature, and all its defined attributes, and yet to be continually undergoing this essential change? Assuredly this cannot be the case, consistenly with any physical laws with which we are acquainted.

Again; in defining the difference between irritation, sensation, volition, and association, Dr. DARWIN resolves it all into the *different portion* of the sensorium in which they originate. Thus, "irritation is an exertion or change of some *extreme* parts of the sensorium; sensation is an exertion or change of the *central* parts;" &c. But the Sensorial Power resides in every part of the body, and it is every where the same fluid, secreted by the same gland, endued with the same attributes, and susceptible of the same changes; and, of course, mere difference of *place*, if other circumstances be equal, is not sufficient to account for so great a difference as that between irritation and volition; and so of the rest. This is assigning a cause which is not known to exist; and which, if it do exist, is not sufficient to explain the phenomena.

But further defects in this theory appear.—From what organ of sense do we derive our *abstract ideas?* What *fibrous motions* are excited when we call to mind the ideas of wisdom, benevolence, justice and truth? According to Dr. DARWIN, these general ideas are repetitions of former particular perceptions, obtained through the organs of sense. But can *general* ideas be mere repetitions of *particular* ones? The simple statement of the doctrine is sufficient for its refuta-

tion. The power of abstraction, then, must be given up, or Dr. DARWIN's theory must be totally abandoned. Nor can this writer be considered as satisfactorily replying to this objection, by asking, as he does, in his turn, how else do we acquire abstract ideas, if not as he states? Though we may not be able to find any other solution of the question, it does not follow that the one which he offers is adequate to the purpose.

Memory is also altogether inexplicable on this theory. This too is said to consist in the repetition of former perceptions. But, according to this definition, the former perception must have been attended with an impression of a previous similar sensation, which involves an absurdity; and as this first contraction of the fibre was occasioned by the action of a certain stimulus, it must be granted by the advocates of this theory, that the stimulus might have acted alone, and the idea of memory have been thus produced, without any object of remembrance. Besides, ideas of memory cannot arise from the motion of peculiar fibres, because these ideas belong alike to all our sensations. Nor are fibrous motions even necessary to their immediate production; for the idea of memory is excited as readily by a desire which we have formerly experienced, or by a process of reasoning formerly made out, as by the renewed action of external stimuli. In short, the theory of Dr. DARWIN, at most, can only be considered, by a candid inquirer, as solving the phenomena of one class of ideas, viz. those which we receive immediately from our external senses. Even of some of these it furnishes an inadequate solution; but all the rest, not only those of memory and abstraction, but also those of imagination, taste, moral perception, &c. are left completely in the dark, after all his fanciful attempts at explanation.

It is also worthy of remark, that one of the leading doctrines of this theory is plainly contradicted by fact. Dr. DARWIN teaches that perception is not to be referred, as some have taught, to any common sensorium in the head, but that it takes place in the several organs of sense themselves; that the fibrous motions in these organs constitute our ideas; and that, of course, when any organ of sense is totally destroyed, all the ideas connected with it necessarily perish. But is the man who became deaf in adult years incapable of forming any ideas of sound? Were HOMER and MILTON unable to conceive of visual objects after they became blind? The noble descriptions with which their poems

abound are alone sufficient to refute Dr. DARWIN. He is contradicted by the experience of every day.

5. Finally, this theory is unnecessarily complex, and offends against the best rules of philosophic simplicity. Irritation is an exertion of the sensorial power, or of the spirit of animation, exciting the fibres to contraction. By this contraction no end appears to be gained. It is not the fibre which is sentient, but the sensorial power resident in the fibre. The contraction can, therefore, be of use only by communicating a certain effect to the sensorial power. But the sensorial power, according to this theory, was itself affected, previously to the contraction, and was itself the proximate cause of the contraction. Of what use, then, is this combination of effects? It may, indeed, render error more complicated and perplexing; but it cannot assist us in the developement of truth.

Such are some of the numerous defects and errors of this celebrated system of intellectual physiology. The author falls into the grand mistake adopted by all the materialists, viz. a belief that we are acquainted with the nature of causation. In the physical world we see events connected with each other, with respect to time and place; but we know not the relation which they sustain. At most, a series of *facts* is all that we can determine. The links which bind them together, and the nature of the respective processes by which they succeed to each other—in a word, the nature of causation we can never understand. We are equally unable to understand the nature of causation in the intellectual world. Dr. DARWIN, like a number of ingenious and learned men before him, has attempted to explore this impenetrable region. But in the attempt, instead of enlightening us by the exhibition of facts, he amuses by presenting phantasms of his own creation. To these he ascribes such powers as suit his purpose; and having drawn out in detail a statement of the actions and variations of these fictitious beings, he would persuade us that the phenomena of mind are *explained*. But let none mistake words for ideas, or creatures of the fancy for realities. "The affections of the sentient principle are not rendered in the least degree more intelligible by resolving them into motions of solids or fluids; for the cause of motion is as inexplicable as the cause of the sentient affection. If the science of mind were less sure than that of matter, the systems of materialism might have some claim to our respect; but though they were liable to no

other objection, the material changes can be known to us only by the changes of mind, and must, of consequence, be liable to all their uncertainty. The theory of Dr. DARWIN, therefore, has not made us more acquainted with the mystery of ourselves; and whatever praise it may deserve as ingenious, its principles cannot be adopted as just."

Those who would see a more detailed view of the defects, errors, and gross inconsistencies of the metaphysical theory of this celebrated physician, will do well to consult *Observations on Zoonomia*, by THOMAS BROWN, Esq. Edinburgh. 8vo. 1798; a work which, though it contains, perhaps, some groundless strictures, manifests great acuteness, learning, taste and urbanity.

Controversy respecting the Soul. p. 33.

In 1702 WILLIAM COWARD, an English physician, published a work, entitled, *Thoughts on the Soul*, in which he maintained that it is material and mortal. He was answered by the Rev. THOMAS BROUGHTON, and others, and defended himself with great zeal. The House of Commons at length interfered in the dispute, and ordered his work to be burned by the hand of the common hangman. In 1706 HENRY DODWELL, a learned writer of South-Britain, published a singular work, in which he attempted to prove, from the Scriptures and the early Fathers, that the soul of man is a principle naturally mortal, but actually immortalized by the pleasure of God, by virtue of its union with the divine baptismal Spirit; and that, since the apostles, none have the power of giving this divine immortalizing Spirit excepting the bishops. This publication occasioned a controversy of considerable warmth and interest, in which Dr. CLARKE, Mr. NORRIS, and others, wrote against DODWELL, and in which the subject received much elucidation. After Dr. CLARKE, ANDREW BAXTER, a distinguished writer of North-Britain, undertook, in a large work, to establish the immateriality of the soul. This work is generally considered as among the most able and satisfactory ever written in defence of the truth which it supports.

CLARKE. p. 33.

SAMUEL CLARKE, D. D. was born at Norwich, in South-Britain, in the year 1675. He was educated at the Univer-

into this branch of science, more fully and with greater success than ever before. In other words, some philosophers of the last age have taught us, for the first time, to study the human mind by ascertaining *facts*, and carefully observing and arranging its *phenomena*, without endeavouring to explain these phenomena by hypotheses and conjectures.

2. The theory of *Perception*, which had, for so many centuries, perplexed and deluded philosophers, was, for the first time, during this period, denied and disproved, and a more rational doctrine introduced in its stead.

3. The enumeration and arrangement of the intellectual powers have been delivered, by metaphysicians of this age, from the false, inadequate, and mischievous simplicity, which were so long and obstinately adhered to by their predecessors. The original powers of the mind have been shown to be more numerous than they were before supposed; and the plan of studying them in detail, rather than through the medium of a set of deceptive systematic rules, exhibited and recommended.

4. The metaphysical writings of the eighteenth century are, in general, more clear, popular and intelligible than those of any former age. To this some of the most erroneous writers of the age have, by their acuteness, contributed. Even BERKELEY and HUME have thus indirectly subserved the interests of metaphysical science.

NOTES ON CHAPTER XIII.

Revival of Classic Literature in Britain. p. 37.

WITHIN the last fifteen or twenty years of the eighteenth century, classic literature, and especially the study of the Greek language, has, in some degree, revived in Great-Britain. From the time in which BARNES, BENTLEY, and CLARKE flourished, till the period above-mentioned, their country could boast of few acquisitions in this department of literature. But towards the close of the century, the labours of BURNEY, WAKEFIELD, PARR, and PORSON, not to mention several others, who might with propriety be introduced into the same list, revived the taste for this kind of learning, and will probably produce still more extensive effects.

neral terms, and which the mind contemplates in employing such terms. Thus, when the general term *vegetable* is used, they contend that the mind contemplates some *substance* of a very refined nature, or a general *form*, having a positive existence. This substance or form, according to them, does not belong to any particular genus or species of vegetables exclusively, but is a *phantasm*, made up of every thing that is common to different genera or species. It is about this form or general essence that the mind is employed while considering vegetable in the abstract. Both the *Platonists* and the *Aristotelians* were *Realists*, though differing among themselves with regard to some details.

The *Nominalists*, on the other hand, contended that there are no existences in nature corresponding to general terms, and that the objects of our attention, in all our general speculations, are not *essences*, *forms*, or *ideas*, but *words*. Thus they suppose that, in the instance above selected, the word *vegetable* is the proper object of thought. This word, having been adopted as the representative of certain ideas collected from several genera and species, is used, in a manner, analogous to an algebraic character, which we employ throughout a process, without attending to the quantity which it represents. This was the doctrine of ZENO, of the Stoics, of ROSCELINUS, in the eleventh century, and of his successor, ABELARD.

The *Conceptualists* dissent from both of the above-stated opinions. They suppose that words are connected, by common consent, with certain attributes common to a number of genera and species, and abstracted from all peculiarities. By the law of the association of ideas, when the word *vegetable* is pronounced, all these attributes are drawn out of the cabinet of memory, and arranged, by the faculty of *conception*, before the mind. This collection of ideas they suppose to be the object about which the mind is exercised. We lose sight of the *word*, and instantly attend to these *conceptions*.

Metaphysical Improvements of the eighteenth Century.

From a review of the whole of this chapter, it appears that the principal improvements which have been made in metaphysical science, during the last age, may be summarily presented in the following particulars.

1. The *Inductive Method* of inquiry has been introduced

into this branch of science, more fully and with greater success than ever before. In other words, some philosophers of the last age have taught us, for the first time, to study the human mind by ascertaining *facts*, and carefully observing and arranging its *phenomena*, without endeavouring to explain these phenomena by hypotheses and conjectures.

2. The theory of *Perception*, which had, for so many centuries, perplexed and deluded philosophers, was, for the first time, during this period, denied and disproved, and a more rational doctrine introduced in its stead.

3. The enumeration and arrangement of the intellectual powers have been delivered, by metaphysicians of this age, from the false, inadequate, and mischievous simplicity, which were so long and obstinately adhered to by their predecessors. The original powers of the mind have been shown to be more numerous than they were before supposed; and the plan of studying them in detail, rather than through the medium of a set of deceptive systematic rules, exhibited and recommended.

4. The metaphysical writings of the eighteenth century are, in general, more clear, popular and intelligible than those of any former age. To this some of the most erroneous writers of the age have, by their acuteness, contributed. Even BERKELEY and HUME have thus indirectly subserved the interests of metaphysical science.

NOTES ON CHAPTER XIII.

Revival of Classic Literature in Britain. p. 37.

WITHIN the last fifteen or twenty years of the eighteenth century, classic literature, and especially the study of the Greek language, has, in some degree, revived in Great-Britain. From the time in which BARNES, BENTLEY, and CLARKE flourished, till the period above-mentioned, their country could boast of few acquisitions in this department of literature. But towards the close of the century, the labours of BURNEY, WAKEFIELD, PARR, and PORSON, not to mention several others, who might with propriety be introduced into the same list, revived the taste for this kind of learning, and will probably produce still more extensive effects.

State of Classic Literature in America. p. 37.

The statement respecting the low state of classic literature in the greater number of our American colleges, though true in general, is not to be admitted without exception. There are instructors in several colleges in the United States, under whose tuition a youth, who is disposed to do justice to himself, may obtain as accurate and good an introduction to Greek and Latin literature as can be obtained in any European university, without exception. But as nothing more than the foundation of knowledge can be laid at seminaries of learning, at least in the usual course; and as this foundation in classic literature is too seldom built upon, in after life, by the youth in America, we have fewer proficients in this department of learning than our just proportion.

The author has been lately informed, and mentions with great pleasure, that in some parts of the United States there are promising appearances of a revival of classic literature.

Greek and Latin Criticism. p. 46.

Though it is certain that the great proficients in classic literature were much fewer at the close of the eighteenth century than at its commencement, yet, in some respects, these few possessed advantages which none of their predecessors enjoyed. The advantages enjoyed by them in the following particulars are obvious. A spirit of *philosophy* has been introduced, during this period, into historical investigations, which, united with the advantages of unwearied research, has greatly extended our knowledge of ancient manners, and afforded new illustration to ancient writings. The niceties of *conjectural criticism* have been carried, since the time of BENTLEY, to a greater length than was ever before known. The proper excellences of *style* have become lately much better understood than they were at earlier periods of the critical art; and the reign of just taste among classical commentators more generally established. Many *grammatical rules* of the ancient languages, and especially of the Greek language, have been ascertained and laid down, with a degree of precision to which former critics were entire strangers. The *metres of the ancient poets* have been much better understood and illustrated by the commentators of the last century

than those of any preceding age. And, finally, by the *collections of new manuscripts*, new light has been thrown on many passages of classic authors which were before unintelligible or obscure. For these improvements we are chiefly indebted to the critics of Great-Britain, Germany, and Holland.

Editions of the Classics. p. 50.

Almost all the classics had been repeatedly edited prior to the commencement of the eighteenth century. Besides many single works of high reputation which pertain to this class, there are two of a more extensive and celebrated kind, belonging to the seventeenth century, which are worthy of notice. These are the *Variorum* editions, as they are generally called, published in Holland, about the middle of that century, by GRÆVIUS, GRONOVIUS, SCHREVELIUS, and others; and the still more famous editions, *In usum Serenissimi Delphini*, published towards the close of the same century, under the patronage of LOUIS XIV. and chiefly completed by the labours of HUET, BOSSUET, MONTAUSIER, and RUÆUS. But these, notwithstanding all their excellence, have not discouraged subsequent attempts. The editions which have been given to the public, during the period of this retrospect, are chiefly distinguished by their great typographical elegance; their additions to the various readings before collected; the superior taste and delicacy of their conjectural criticism; and their more enlightened and liberal commentaries on the defects, beauties, and meaning of the ancient writers.

The following editions of *Greek* authors, in addition to those before mentioned, are worthy of notice: viz. the works of *Aristotle*, by BUHLE; of *Longinus*, by PEARCE and RUHNKENIUS; of *Demosthenes*, by WOLFIUS and TAYLOR; of *Aristophanes* and *Sophocles*, by BRUNCK; and of *Anacreon*, by BARNES, PAUW, SPALETTI, DEGEN and GAIL.

The following editions of Latin authors also deserve to be mentioned: viz. *Cicero*, by BARBOU; *Livy*, by CREVIER; *Justin*, by BARBOU; *Sallust*, by HAVERCAMP, and by Don GABRIEL, of Spain; *Terence*, by Mrs. GRIERSON, by WESTERHOVIUS, and by ZEUNIUS; *Pliny*, sen. by HARDOIN; *Pliny*, jun. by GESNER, and by L'ALLEMAND; *Suetonius and Plautus*, by ERNESTUS; and *Propertius*, by BROUKHOUSIUS and BURMANN.

Translations of Classic Authors. p. 52.

To the list of translations of *Greek* classics into the English language, during the late century, add the following:—*Pindar*, by WEST; *Anacreon*, *Bion*, *Moschus*, and *Theocritus*, by FAWKES; and *Anacreon*, by MOORE.

To the catalogue of versions of *Latin* classics into English, during the same period, we may add, the *Bucolics* and *Georgics* of *Virgil*, by Professor MARTYN, of Cambridge; and the Comedies of *Plautus* by THORNTON.

The translation of the *Iliad* and *Odyssey* of *Homer*, into French, near the beginning of the century, by Madame DACIER, is among the numerous monuments of the learning and talents of that distinguished woman.

The works of *Plutarch* were translated into French, early in the century, by M. AMIOT; and, more recently and ably, by M. RICCARD.

The translation of the *Bucolics* and *Georgics* of *Virgil*, into *Greek* hexameters, by EUGENIUS, a Russian Archbishop, is a singular specimen of literary labour. This work was splendidly printed, towards the close of the eighteenth century, under the patronage, and at the expense of Prince POTEMKIN.

NOTES ON CHAPTER XIV.

Hebrew Literature.

AMONG the numerous *Hebrew Grammars* which have solicited public attention during the last age, respectful notice ought to be taken of "*A Plain and Complete Grammar of the Hebrew Language, with and without Points.*" By ANSELM BAYLY, LL. D. 8vo. 1774.

The *Tractatus Stigmologicus* of the Rev. THOMAS BOSTON, a pious and learned clergyman of North-Britain, deserves a distinguished place in the list of those publications which do honour to the eighteenth century, with respect to Hebrew literature. It is too little known, and as it is more read, will be more esteemed.

The *Origines Hebraicæ* of Professor SCHULTENS, of Leyden, do great honour to this period. The *Janua Hebraicæ Linguæ*, by REINECIUS; the *Supplementa ad Lexica Hebraica*, by JOHN DAVID MICHAELIS; and the *Institutiones Linguæ Hebraicæ*, by SCHROEDER, all of Germany, have been mentioned with much respect by the oriental critics of that country.

The *Apparatus Criticus* of BENGEL is mentioned under this head by mistake. It does not belong to the department of Hebrew literature. It is a critical, learned, and highly valuable work on the New Testament.

It is also erroneous to ascribe a "great *Hebrew Lexicon*" to CALMET. That great man never published such a work. His *Historical, Critical and Chronological Dictionary of the Bible*, in two vols. folio, is a work of high reputation, and contains much important criticism on the Old Testament Scriptures.

Arabic Literature.

Professor REISKE, of Leipsic, who died in 1774, after a life of more than eighty years, was one of the most able and zealous promoters of Arabic literature that the age produced. By his unremitted oral instructions, and by his valuable publications, he contributed to the rearing of a great number of excellent Arabic scholars. His successor in the professorial chair at Leipsic, E. C. ROSENMULLER, is highly distinguished in the same walk of literature. His *Arabisches Elementar*, &c. is represented as a work of much value, and worthy of a place in the library of every student of the Arabic language.

In 1800 Professor WHITE, of the University of Oxford, presented to the lovers of Arabic literature a curious and valuable work, entitled, *Abdollatiphi Historiæ Ægypti Compendium Arabice et Latine.* This work was first carried to England by Dr. POCOKE, the celebrated traveller. His son, a great Orientalist, undertook to translate and publish it, but never completed his undertaking. Professor WHITE, at length, published the original Arabic, with a Latin translation, and learned notes. This has been represented as one of the most curious and valuable specimens of Arabic literature ever imported from the East.

Since the version of SALE, the *Koran* has been translated

into French by M. SAVARY, the celebrated traveller into Egypt. It is published with his *Letters on Egypt and Greece*, in six vols. 8vo.

Persian Literature.

The translation of the History of *Nadir Shah* was undertaken by Sir WILLIAM JONES, at the instance of the King of Denmark. For this honourable monument of learned labour, his royal employer presented him with a snuff-box!

Persian literature has also been enriched, during the last age, with a number of other important translations into the different languages of Europe.

Hindoo Literature.

The principal compiler of the *Lettres Edifiantes et Curieuses*, was Father CHARLES GOBIEN, a Jesuit, of St. Maloes, assisted by DU HALDE, and others, of the same order. These *Letters* are filled with interesting accounts of the Natural History, Geography, Policy, and Literature of the countries visited by the Jesuits. They appeared at an early period of the century, in a number of volumes.

JOHN ZEPHANIAH HOLWELL, Esq. Governor of Bengal, was among the persons confined in the *Black Hole*, at Calcutta, in 1756, of which he published a narrative. He was among the first Europeans who engaged in the study of Hindoo antiquities; and pointed out the path which others have so successfully pursued. He was, however, wholly ignorant of the Sanscrit language, and, on account of this deficiency, laboured under many disadvantages, and made gross mistakes in his investigations.

Mr. HALHED published a *Grammar of the Bengal Language*, in Calcutta, in 1778, and in London in 1780. Considering this language as the sole channel of personal and epistolary communication among the Hindoos, of every occupation and tribe; and considering, also, that, of all the oriental languages, this approaches nearest to the *Sanscrit*, in expression, structure, and character, every attempt to illustrate its principles, and facilitate its acquisition, may be regarded as an important present both to the literary and commercial world.

Mr. COLEBROOKE, towards the close of the century, published a *Digest of Hindoo Law*, in four vols. 8vo. He was induced to undertake this work by the recommendation of Sir WILLIAM JONES. It is, on various accounts, a curious and valuable work.

The Rev. WILLIAM CAREY, a Baptist missionary of distinguished talents and piety, has, by his persevering labours, rendered important service to Hindoo literature. At the close of the eighteenth century he had translated the whole Bible into the Bengalee language, had printed his translation of the New Testament, and distributed a large edition of this portion of the sacred scriptures among the Hindoos. This zealous and unwearied missionary has also formed a *Sanscrit Grammar*, and has begun a *Dictionary* of the same language.

Chinese Literature.

A curious specimen of Chinese literature was given to the world, during the eighteenth century, by JOSEPH MOYRIAC DE MAILLA, a learned French Jesuit. Having made himself acquainted with the Chinese language, this ecclesiastic was sent as a missionary to China in 1703. He was greatly esteemed by the Emperor, KANG-HI, who employed him in making a map of China, and of Chinese Tartary. MAILLA translated the great *Annals of China* into French, part of which translation has been published by the Abbè GROSIER, under the following title: *Histoire General de la Chine.* 13 vols. 4to. Paris. 1777.—MAILLA died at Pekin, in the year 1748.

NOTES ON CHAPTER XV.

French Language.

SINCE the publication of RICHELET's Dictionary, a more full and accurate one has been compiled by the Abbè FERAUD.

Italian Language.

During a great part of the seventeenth century the Italian language was in a state of comparative degeneracy. It abounded, to an excess, with metaphor and antithesis, allusion and conceit; so that, instead of the simplicity which had before prevailed, affectation and obscurity became its distinguishing characteristics. This taste was too much countenanced and promoted by the writings of MARINI, TASSO, and CHIABRERA, which, though monuments of great genius, yet gave currency to false principles of composition. During this period the best models of ancient taste fell into neglect; and such only were selected for imitation as favoured the glitter, the bombast, and the pedantry which were then in vogue. Of this the satires of BENEDICT MENZINI, and of SALVATOR ROSA, and the discourses of MORONE, PAOLETTI, and others, afford sufficient proof.

Towards the close of the seventeenth century these perversions of taste began to decline, and the Italian literati assumed a style more simple, unaffected and accurate than that which had been in fashion for more than an hundred years. APOSTOLO ZENO, a distinguished Venetian writer, was one of the first who introduced a natural turn of sentiment and expression into his writings, and recommended this manner to his countrymen. GRAVINA, about the same time, recalled the attention of the learned to the best specimens of Grecian and Roman eloquence. Besides these, the poems of LAZZARINI, the miscellaneous pieces of TAGLIAZUCCHI, the historical writings of MURATORI, the dramatic productions of MARTELI, MAFFEI, CÆSAROTTI, ALFIERI, and METASTASIO, the various works of the Marquis of BECCARIA, and many others, are entitled to particular notice, as honourable to Italian literature during the eighteenth century, and as having contributed to the progress of its improvement.

By the influence of these and other writers, the Italian language gained, in the eighteenth century, a degree of purity, dignity, and general excellence, unknown even in the age of BEMBO and of CASA. The ancient rules and models of taste resumed, in a considerable degree, their sway; and, what is, perhaps, of little less importance, some of the most classical productions of Great-Britain and of France, by being translated into Italian, and naturalized in that country, have contributed, in no small degree, to meliorate the public taste, and to produce a reform in the literature of that country.

German Language.

About the year 1720, the practice of employing the vernacular tongue in important scientific publications was commenced in Germany. For the introduction of this improvement the honour is chiefly due to THOMASIUS, an eminent metaphysical and moral writer of that country; and to WOLF, distinguished for his labours in the same department of science. Their example was soon followed by others. From that period, therefore, it became necessary for authors to cultivate their own language with greater care; the influence of which soon became visible in their writings. A few years afterwards, that is to say, about the middle of the century, the practice of translating the best French and English books commenced in Germany, and produced very sensible effects in meliorating the style of writing among the German literati. These events were succeeded by the works of several authors, who wrote with a particular view to the introduction of new idioms and graces of language, and whose exertions were productive of the most useful effects.—See the progress of improvement in German style more minutely traced in the 26th chapter of this work.

NOTES ON CHAPTER XVII.

THE principal writers of *Universal History* in Germany are GATTERER, HEINRICH, MULLER, and HABERLIN. The most distinguished writers of particular histories are GEBAUER, SCHMIDT, KRAUSE, WIELAND, GALETTI, and SCHILLER. The greatest *Statistical* historians are ACHENWALL, WALCH, REINHARD, REMER, MEUSEL and SPRENGEL.

The *History of England*, in the form of *Letters from a Nobleman to his Son*, in two vols. 12mo, was ascribed to Lord LYTTLETON, to the Earl of ORRERY, and other noble writers; but was, in reality, written by Dr. GOLDSMITH.

Mrs. MACAULAY, in her *History of England from the Revolution to the present Time*, 4to. 1778, adopts the mode of writing in *Letters*, addressed to the Rev. Dr. WILSON.

Sir JOHN HAWKINS published an *History of Music*, in 1776, in five vols. 4to. This work contains much curious information, and is reputable to its author; but has been superseded by the better work of Dr. BURNEY.

The first *Chart of History* was published, it is believed, in France, about the year 1760, by the Abbè LANGLET DU FRESNOY. A few years afterwards, a similar work, taken from DU FRESNOY's, but much improved, was published in England. Dr. PRIESTLEY's *New Chart of History* was the third attempt of the kind; and is, doubtless, superior to all preceding works of a similar nature.

NOTES ON CHAPTER XVIII.

THE *Eloges* of FONTENELLE, and of D'ALEMBERT, hold a distinguished place among the writings of this class in the last age.

The *American Biography*, by the late Rev. Dr. BELKNAP, of Boston, in two vols. 8vo. is a work honourable to the compiler, and highly useful to the student of American history.

To the list of biographical works given in pages 151 and 152, it is proper to add, *Memoirs of the Life and Administration of Sir Robert Walpole, Earl of Orford*, by COXE.

The *Life of Lorenzo de Medici*, by ROSCOE, is worthy of more particular notice, and of more pointed praise, than are bestowed upon it in the above-mentioned page. It indicates an extent of reading, and an elegance of taste, which will do lasting honour to the author.

The *Life of Linnæus*, by STOEVER, deserves a place among the valuable biographical works which appeared towards the close of the eighteenth century.

Almost all the *Accounts of distinguished Living Characters*, with which the republic of letters has abounded within a few years past, have been worse than useless. With few exceptions, they have been written in a continued strain of panegyric, which is rather calculated to flatter its immediate objects, and to mislead others, than to gratify curiosity, or to convey instruction. If these works should be perused

a century hence, they will give scarcely any just information concerning the characters of which they treat.

The number of *self-biographers* was much greater in the eighteenth century than in any former period.

NOTES ON CHAPTER XX.

POPE *and* DRYDEN. p. 181.

A FRIEND of learning and taste, on reading what is said of the comparative merits of these two great English poets, made the following remark: "DRYDEN, in my opinion, did more to improve English versification than POPE. The interval is wider between DRYDEN and the best of his predecessors than between DRYDEN and POPE."

Epic Poetry.

GLOVER wrote a second epic poem, entitled, *The Atheniad*, which has been praised; but is generally considered as inferior to his *Leonidas*.

The Epigoniad, by the Rev. Dr. WILLIAM WILKIE, of North-Britain, is an epic poem of some merit, but far from being entitled to a place in the first class. This writer has been called the "Homer of Scotland." His work was first published in 1757, and reached a second edition in 1759.—He died at St. Andrews in 1772.

In the composition of the *Joan of Arc*, SOUTHEY was assisted by his friend COLERIDGE, a poet of great genius and taste.

COWPER's *Translation of Homer* deserves an honourable place here. Considered as a *translation*, it is certainly superior to POPE's. GILBERT WAKEFIELD observes, that whoever wishes to see Homer in English dress must read COWPER.

Oberon, though the best, is not the only epic poem produced by WIELAND. His *Idris*, his *Neuen Amadis*, and his *Liebe um Liebe*, were prior in time, but inferior in merit.

They have, however, been highly commended, particularly by the critics in the author's own country.

It is the opinion of some good judges that the *Lusiad* of MICKLE is much superior to the *Lusiad* of CAMOENS. The translator has certainly, in some respects, improved on the original, and made many additions.

The Poems of *Ossian*, a little before the close of the century, were translated into Italian, by CÆSAROTTI, with great elegance.

Didactic Poetry.

WIELAND, the celebrated German writer, has written several didactic poems, which have been much commended. His *Die Natur*, his *Anti-Ovid*, and his *Musarion*, are represented as possessing peculiar merit. With their character, however, I have too little acquaintance to speak particularly. Besides these, the didactic poems of HAGEDORN, GIESKE, KASTNER, UZ and DUSCH, also Germans, have been spoken of, by the critics of their own country, with high respect.

The Grave, a didactic poem, by BLAIR, is a work of great excellence, and general popularity.

The following remarks may with propriety be read in connection with the character which is given of the Abbè DELILLE's *Garden*.

"VOLTAIRE, in his discourse pronounced at his reception into the French Academy, gives several reasons why the poets of that country have not succeeded in describing rural scenes and employments. The principal one is, the ideas of meanness, poverty, and wretchedness, which the French are accustomed to associate with the profession of husbandry. The same thing is alluded to by the Abbè DELILLE, in the preliminary discourse prefixed to his translation of the *Georgics*. 'A translation,' says he, 'of this poem, if it had been undertaken by an author of genius, would have been better calculated than any other work for adding to the riches of our language. A version of the *Æneid* itself, however well executed, would, in this respect, be of less utility; inasmuch as the genius of our tongue accommodates itself more easily to the description of heroic achievements, than to the details of natural phenomena, and of the operations of husbandry. To force it to express these with suitable dignity, would have been a real conquest over that false delicacy which it

has contracted from our unfortunate prejudices."—STEWART's *Elements of the Philosophy of Mind*, Part II. chap. v. § 2. second edit.

Moral and Devotional Poetry.

To the list of sacred poets, the immortal name of COWPER ought to be added, as holding a place in the first rank. The orthodoxy of his faith, and the fervour of his piety, joined to his great talents, fitted him pre-eminently for this species of composition.

GELLERT is by no means the only sacred poet of whom Germany boasts. The *Hymns* of KLEIST, CRAMER, KLOPSTOCK, SCHLEGEL, and HERDER, have received high praise.

Descriptive Poetry.

The *Alpen* of Baron HALLER, published in 1729, is a descriptive poem of considerable reputation. The *Frühling* of KLEIST is a poem of still more distinguished excellence. Though not equal to THOMSON, with whom he has been compared, he has certainly painted some of the most beautiful scenes in nature, in just, vivid, and beautiful colours. To these may be added, belonging to the same class, the *Luise* of Voss, and the *Hermann and Dorothea* of GOETHE, which are generally placed, in that country, in the first order of descriptive poetry.

Drama.

A tragedy, entitled, *The Grecian Daughter*, is, by mistake, ascribed to MOORE, in p. 210. He published no dramatic work under that title.

In p. 211 there is an erroneous statement respecting comedy. Several of SHAKSPEARE's comedies are purely comic. His tragedies are rather chargeable with having a mixed character than his comedies.—DRYDEN also wrote several unmixed comedies.

Towards the close of the eighteenth century, the plays of FARQUHAR, on account of their licentious character, were seldom played, and never without great alterations. They are wholly discontinued on the American stage.

Two comic productions of Mr. SHERIDAN, besides his *School for Scandal*, have been celebrated; viz. *The Rivals*, and *The Critic*. Both these works, and especially the latter, are considered as doing honour to the fertile genius of the author.

The younger COLMAN is entitled to a place among the distinguished comic writers of Great-Britain, at the close of the century under consideration. He is said, by some, to be inferior only to Mr. SHERIDAN. His *Ways and Means*, his *Surrender of Calais*, and his comic opera of *Inkle and Yarico*, have commanded much popular applause. Some of his dramatic pieces, however, are said to be tinctured with mischievous principles, and to have an immoral tendency; but of the nature and extent of these faults I have too little knowledge to be able to speak precisely.

The close of the century was distinguished by the dramatic publications of Miss JOANNA BAILLIE, who is considered by many as having retrieved the declining character of the age with respect to tragic composition. A respectable critic has pronounced, that, "for lofty poetry, sublime sentiment, and true pathos, her tragedies stand unquestionably at the head of every modern effort of the tragic muse."

The three plays of BEAUMARCHAIS, mentioned in page 217, form one story; and in the last of the three, the crimes and follies of the characters are represented as punished.

Besides the German dramatists mentioned in pages 220 and 221, there are several others who deserve respectful notice. SCHLEGEL, WEISSE, LEISEWITZ, and GERSTENBERG, have produced tragedies of high reputation. The tragedies of KLOPSTOCK are also represented as models of sublimity, both in sentiment, language, and action.—In comedy, CRUGER, KLINGER, WETZEL, GROSMANN, and ENGEL, are spoken of as having merit of a very conspicuous and popular kind. But while many of the dramatic productions of Germany, during the period under consideration, stand high on the scale of genius and taste, some of them deserve to be reprobated as replete with erroneous sentiment, and as being most pernicious in their moral tendency.

The character of the drama in America, towards the close of the eighteenth century, began to be more distinct and national than at any former period. Instead of waiting altogether for the productions of the English stage, and continuing to be its servile echo, the American stage has exhibited a considerable number of original pieces, and others adopted

from the French and German. And though the former are not equal to the first class of British productions, and the moral tendency of some of the latter has been questioned; yet they form one step in that literary progress of our country which is more particularly detailed in another place.

In enumerating the peculiar advantages under which poetic compositions were presented during the last age, it would be improper to omit taking notice of the illustration of poetic pictures by *elegant engravings*, and other appropriate ornaments. The *Shakspeare Gallery*, the plates for illustrating *Milton*, *Thomson*, and many other distinguished poets, had certainly no equals in any preceding age.

NOTES ON CHAPTER XXII.

Newspapers in the United States. p. 251.

AFTER taking much pains to ascertain the number of newspapers printed in the United States, the author is enabled to present the following list. He dares not assert that it is accurate or complete; but it is as nearly so as he could make it. It is proper to observe, however, that, as the materials which form it were collected at different times in the years 1801 and 1802, it is not improbable that some of the papers mentioned have been since discontinued, and others established. The real number may certainly, however, be considered, in the gross, as rather greater than that which is here presented.

In NEW-HAMPSHIRE there are ten newspapers; viz. three at *Portsmouth*; one at *Concord*; one at *Dover*; one at *Gilmantown*; one at *Amherst*; one at *Keene*; one at *Walpole*; and one at *Dartmouth*. They are all published *once* a week.

In MASSACHUSETTS there are twenty-six newspapers; viz. five in *Boston*, each published twice a week: two in *Salem*; two in *Newburyport*; two in *Worcester*; one in *Brookfield*; one in *Springfield*; one in *Northampton*; one in *Pittsfield*; one in *Dedham*; one in *Stockbridge*; one in *New-Bedford*; one in *Haverhill*; one in *Leominster*; three in *Portland*;

one in *Augusta;* one in *Castine;* and one in *Greenfield;*—all published *weekly.* The four last mentioned towns are in the *Province of Maine.*

In RHODE-ISLAND the number of gazettes has not been ascertained. It is believed there are four; viz. two in *Providence,* and two in *Newport,* each published *twice* a week.

In CONNECTICUT there are seventeen newspapers; viz. two at *Hartford;* two at *New-Haven;* three at *New-London;* two at *Norwich;* one at *Wyndham;* one at *Stonington;* one at *Litchfield;* one at *Sharon;* one at *Danbury;* one at *Norwalk;* one at *Middletown;* and one at *Newfield.* All these are published *once* a week.

In VERMONT there are eight newspapers; viz. one at *Bennington;* one at *Rutland;* one at *Vergennes;* one at *Brattleborough;* two at *Windsor;* one at *Peacham;* and one at *Randolph;*—all published *weekly.* At the time when this list was communicated to the author (February, 1801), three new gazettes were talked of; viz. one each at *Bennington, Burlington,* and *St. Alban's.*

In NEW-YORK there are thirty-eight newspapers; viz. in the city of *New-York* thirteen, seven published *daily,* four *twice* a week, and two *weekly;* three in *Albany,* each published twice a week; one at *Brooklyn;* two at *Newburgh;* two at *Poughkeepsie;* two at *Kingston;* one at *Kaatskill;* three at *Hudson;* one at *Troy;* one at *Lansingburgh;* one at *Salem;* one at *Waterford;* one at *Johnstown;* one at *Herkemer;* one at *Cooperstown;* one at *Whitestown;* one at *Rome;* one at *Oswego;* and one at *Canandarqua;*—all printed *weekly.*

In NEW-JERSEY there are eight newspapers; viz. two at *Trenton;* two at *Newark;* one at *Elizabeth-Town;* one at *Brunswick;* one at *Morristown;* and one at *Burlington.* These are all printed *weekly.*

In PENNSYLVANIA the number has not been accurately ascertained. It is believed, however, to be about twenty-eight. Of these five or six are published *daily;* about the same number *twice* a week; and the remainder *weekly.* At least five of the newspapers in Pennsylvania are in the *German* language.

In DELAWARE there are three newspapers; viz. two in *Wilmington,* published *twice* a week; and one in *Dover,* published *weekly.*

In MARYLAND there are fourteen newspapers; viz. three in *Baltimore,* published *daily;* three in *Washington,* of

which two are published *three times* a week, and one *weekly*; two at *Georgetown*, each printed *three times* a week; and one at *Annapolis*; one at *Easton*; two at *Hagar's-Town*; and two at *Frederick-Town*;—all *weekly* papers.

In VIRGINIA there are seventeen newspapers; viz. two at *Alexandria*, published *daily*; three at *Richmond*, each *three times* a week; two at *Norfolk*, *twice* a week; two at *Petersburgh*, *twice* a week; and one at *Fredericksburgh*, also *twice* a week. Besides these, there are, one at *Fincastle*; one at *Leesburg*; one at *Lynchburg*; one at *Staunton*; one at *Martinsburg*; and two at *Winchester*;—all *weekly* papers.

In NORTH-CAROLINA there are eight newspapers; viz. two at *Raleigh*, the seat of government; one at *Edenton*; one at *Newbern*; one at *Wilmington*; one at *Halifax*; one at *Salisbury*; and one at *Lincolnberg*;—all *weekly* papers.

In SOUTH-CAROLINA the number of newspapers could not be ascertained at the time when inquiry was made. There are probably at least six or eight; perhaps a greater number.

In GEORGIA there are six newspapers, viz. two in *Savannah*, one of which is published *twice* a week, and the other *weekly*; two at *Augusta*, each *weekly*; and one *weekly* paper each at *Louisville* and at *Washington*.

In KENTUCKY there are four newspapers; viz. two at *Lexington*; one at *Frankfort*; and one at *Louisville*;—all *weekly* papers.

In TENNESSEE there are two newspapers; viz. one at *Knoxville*, and one at *Nashville*;—both published *weekly*.

In the State of OHIO there is at least *one* newspaper, printed at *Chillicothe*; and probably one or two more.

In the MISSISSIPPI TERRITORY there is one newspaper, printed *weekly* at the city of *Natchez*.

There are, then, in the United States, about 200 newspapers. Of these at least seventeen are printed *daily*, seven *three times* a week, thirty *twice* a week, and one hundred and forty-six *weekly*.

The statement in p. 251 differs, in some respects, from that which is here given. It is believed that the latter is the more correct.

NOTES ON CHAPTER XXIII.

American Philosophical Society. p. 259.

THE following brief notices respecting the rise and progress of this institution, and its situation in 1803, are extracted from a private letter, addressed to the author by a member of the association.

"In the year 1743 a society was formed in Philadelphia, taking the name of *The American Philosophical Society.* Its most early and active members were, BENJAMIN FRANKLIN, Dr. THOMAS BOND, Rev. Dr. FRANCIS ALISON, Rev. JOHN EWING, Rev. Dr. WILLIAM SMITH, and Mr. DAVID RITTENHOUSE.

"In the year 1766 another society was formed, under the name of *The American Society for promoting and propagating useful Knowledge in Philadelphia.* Among its most active members appear to have been Messrs. CHARLES THOMPSON, EDMUND PHYSICK, ISAAC PASCHALL, OWEN BIDDLE, MOSES BARTRAM, and ISAAC BARTRAM.

"The chief business of the former of these societies seems to have been the making and receiving of *communications* on various philosophical subjects; and of the latter, the proposing and discussing of *questions* on a great variety of subjects, chiefly philosophical and political: and among these it is impossible not to discern strong symptoms of that spirit of freedom which was soon to discover itself in the American revolution.

"In the beginning of the year 1769 these two societies united, under the name of *The American Philosophical Society, held at Philadelphia, for promoting useful Knowledge.* The elder branch, at the time of the union, contained 144 members, including 80 corresponding members; and the younger branch contained 128 members. Several gentlemen, however, were at this time members of both.

"The society was incorporated, by an act of the Legislature of Pennsylvania, in the year 1780. Aided by the munificence of the State, and liberal donations of individuals, they have now erected, on a lot of ground in the State-House square, a commodious, and not inelegant building, where they keep their museum and library, and hold their meetings.

"The society have published five quarto volumes of their *Transactions*. Their library, chiefly formed by the benevolent donations of similar societies both in Europe and America, and of individuals, now contains upwards of 1300 volumes. Their museum of natural history is not yet very extensive; but, however, contains a number of rare and valuable specimens, chiefly of the fossil or mineral kind. Their philosophical apparatus is still in an infant state, but progressive.

"In the year 1786 Mr. JOHN HYACINTH DE MAGELLAN, of London, made a donation to the society of 200 guineas, to be vested in a permanent fund, to the end that the interest arising therefrom should be annually disposed of in premiums, to be adjudged by the society "to the author of the best discovery, or most useful invention, relating to navigation, astronomy, or natural philosophy (mere natural history only excepted)." A few only of these premiums having been yet awarded, this fund is now considerably accumulated. The society have, from their own proper funds, offered premiums, and invited candidates to make communications of inventions or improvements relative to certain specified objects.

"With respect to the number of the present members of the society I cannot speak with any degree of certainty. It may, perhaps, be about two hundred, of whom about one half may be foreigners, about forty in Philadelphia and its vicinity, and the rest in all parts of the United States.

"The society, I may say with truth, is at present in a pretty flourishing condition. Its meetings are well attended, and every part of its business conducted with regularity. This, in justice, however, is to be ascribed to the zeal and activity of a very few of its members.

"The society have no other funds than those which arise from the annual contribution of two dollars from each of its resident members, and the occasional donations of liberal individuals."

American Academy of Arts and Sciences. p. 260.

The following extract of a letter from a member of the Academy, written in September, 1801, will give the reader a comprehensive view of the history of this institution, and of its state at that time.

"The American Academy of Arts and Sciences was incor-

porated May 3, 1780. The first meeting was on the 30th of the same month. The late Governor BOWDOIN was elected President; and was annually re-elected until his death, which happened November 6, 1790. In May, 1791, the Hon. JOHN ADAMS, LL. D. was elected President, and has been annually re-elected since. In the year 1785 the Academy published a volume of their Transactions in quarto. The preface to this volume, the incorporating act, and statutes of the Academy, together with Mr. BOWDOIN's inaugural address, which it contains, will give full information of the nature and objects of the society, and of its situation at that time. Though the volume is intrinsically valuable and well executed, and was offered for sale at the moderate price of sixteen shillings, yet it had a very limited sale, and the publication involved the Academy in a debt, which occasioned no small embarrassment. The first part of a second volume was, however, published in 1793, and a sufficient number of papers have been some time past selected to complete the volume. It will soon be published.

"The present funds amount to about 7300 dollars, vested in different descriptions of stocks. Five thousand dollars of this sum arises from a donation made by Count RUMFORD in 1796: the interest of which is, by the terms of the donation, to be 'applied and given, once every second year, as a premium to the author of the most important discovery or useful improvement which shall be made known to the public in any part of the continent of America, or in any of the American islands, during the preceding two years, on Heat or on Light.' The Academy have voted, that at their meeting in May next, and afterwards at their meeting in May biennially, they will decide on the discovery or improvement which shall appear to be entitled to the premium. Notice will soon be published of this vote. Count RUMFORD's donation is in three per cent. stock. The residue of the fund arises from a donation of £100, given by Mr. BOWDOIN in his will; the like sum given by JOSIAH QUINCY, Esq. 440 dollars given by the General Court in 1787; and an annual assessment of two dollars on each member. The sum of five dollars is also paid by each member on his admission. In addition to the pecuniary legacy, Governor BOWDOIN gave to the Academy his library, consisting of about twelve hundred volumes, with liberty to sell any part of it, the proceeds to be vested in books. About six hundred volumes were sold under this permission. The library of the Academy now contains about

thirteen hundred volumes, among which are many rare and valuable books. Besides Mr. BOWDOIN, the principal donors are, the present President of the Academy, Dr. FRANKLIN, and M. VERON, who was a surgeon in the squadron of M. DE TERNAY. The number of the original or statute members was sixty-two. One hundred and sixty-one members have been elected since the commencement of the institution. There are now living, of the whole corps, 170; viz.

Resident members, by which is meant those who belong to the commonwealth	95
Resident in other States in the union	30
Foreign members	45
Making in the whole	170

"The Academy meets four times annually; in January and May at *Boston*—in August and September at *Cambridge*. Their meetings at Boston are holden in an apartment lately assigned for their accommodation in the new State-House, where also their library and museum are deposited. A catalogue of the books in the library is in preparation, and will soon be published. It has been sometimes remarked that this society has been, in a degree, languid in its operation, and has not fully satisfied the public expectations. Whatever justice there may be in such a remark, I shall not now attempt to trace the source. There is evidently a want of excitement; and the public ought to have candour enough to take part of the blame to itself. I have the satisfaction, however, to observe, that there appears, of late, a renewed and more lively attention among its members to the concerns of the institution. I ought to have mentioned, among the liberalities of the General Court, the plates of the *map* of the commonwealth, which were given to the Academy and to the Historical Society. The donation has been accepted, and a joint committee of the societies have lately sold the right of impression for seven years for 600 dollars, to be paid to the societies without any deduction.

NOTES ON CHAPTER XXVI.

German Literature. p. 330.

THE pernicious tendency of many modern German publications has been often the subject of remark within a few years past. That works of solid merit, which cannot be too generally known and read, are every year published in that country, is not denied; but that a considerable number daily issue from the German presses, of a very different and most pestiferous character, can as little be doubted. A late writer, in a memoir on this subject, makes the following striking remarks. How far they are just or otherwise is left to be determined by every reader.

"After all, it may not be chimerical to suppose, that the general reception of the *German* writings, the universal prevalence of the German taste, and the love of the wild and gloomy, are not to be accounted for from ordinary causes, and have in them more weight and importance than are usually attached to mere matters of taste and criticism. May not these be among the elements of feverish agitation and mighty change, afloat, by the permission of Providence, for purposes, to us inscrutable, in the moral system? May not this revolution in taste be a prelude to other revolutions—a small skirt of the cloud, *like a man's hand*, ushering in the blackening tempest? Are not the German writings calculated to generate, in both sexes, a ferocious hardihood, and independence of mind; a dangerous contempt of established forms; a promptitude, to suffer and to dare; an enthusiasm of character, fitting them for seasons of energy, of exertions, of privations, dangers, and calamities? It is natural for human blindness and inattention to overlook the instruments and operations by which Providence prepares and fashions great and surprising events. It is the folly of man to ascribe too little weight and importance to moral causes; while it is the course of Providence (as it were, on purpose to humble human pride) to act by seemingly minute and inefficient causes. Who knows, then, but this preternatural appetite for the irregular, the indecorous, the boisterous, the sanguinary, and the terrific, may be the precursor of some strange moral or political convulsion?"—*Transactions of the Royal Irish Aca-*

demy, vol. viii. *Reflections on the Style and Manner of some late German Writers, and on the Tendency of their Productions.* By WILLIAM PRESTON, Esq. M. R. I. A.

American Episcopate. p. 368.

Among those who signalized themselves as writers in favour of the introduction and support of an *American Episcopate*, the name of Mr. JOHN VARDILL ought not to have been omitted. Mr. VARDILL was born and educated in the city of New-York. In the year 1762 he was admitted into *King's College*, as it was then called; and having passed, with high reputation, through the usual course of academic instruction, he received the degrees of Bachelor and Master of Arts, and remained in the college for the purpose of prosecuting his studies, preparatory to his application for orders in the Episcopal Church.

In the year 1773 he was elected Fellow of the College, and Professor of Natural Law; and, towards the conclusion of that year, went to England for ordination, where he has since remained. In early youth he discovered a very considerable poetical genius; and several of his publications in this way, at different periods of his life, have been received with much applause. He bore a conspicuous part as a writer at the commencement of the contest between this country and Great-Britain; and in the dispute relative to the introduction and establishment of *Bishops* of the Episcopal Church.

Dr. SEABURY. p. 369.

As Dr. SAMUEL SEABURY was the first Episcopal Bishop that ever resided in the United States, it is thought proper to present the following additional information respecting him, which has been communicated to the author since the account in the above-mentioned page was printed.

He was born in 1728, and passed through the regular course of education in *Yale College*, where he graduated in 1751. In 1752 he went to Scotland for the purpose of studying Medicine; but soon afterwards turning his attention to Divinity, he went to London, where he was ordained a Deacon, Dec. 21, 1753, by the Bishop of Lincoln, at the request of THOMAS SHERLOCK, Bishop of London; and a

few days afterwards, Priest, by the Bishop of Carlisle. Besides remaining in Scotland about one year, he spent two or three months at the University of Oxford.

He was first settled in the ministry at *Brunswick*, in New-Jersey. Here he remained about three years. From Brunswick, in the beginning of the year 1757, he removed to *Jamaica*, on Long-Island, where he resided until December, 1766; thence he removed to *Westchester*, in the State of New-York. In this place he remained until the commencement of the revolutionary war, when he went into the city of New-York, and after the termination of this controversy settled in Connecticut. In 1777 he received the degree of *Doctor of Divinity* from the University of Oxford.

Dr. SEABURY went to England, in 1784, to obtain consecration as Bishop of the Episcopal Church in Connecticut. Meeting, in South-Britain, with some obstruction to the accomplishment of his wishes (an obstruction, however, entirely unconnected with personal considerations), he went to Scotland, where, in the month of November in that year, he was consecrated Bishop, by Messrs. ROBERT KILGOUR, ARTHUR PETRIE, and JOHN SKINNER, nonjuring Bishops of Scotland.

He continued for a number of years after this period to reside at New-London, and to discharge, in an exemplary manner, the duties of his office. He was warmly attached to the Episcopal Church, and generally esteemed as one of her most zealous and able defenders in America.—He died in 1796.

American Colleges. p. 385.

The following list of American Colleges has been made out with considerable care. It may, perhaps, be regarded as a record of some value, not only for gratifying present curiosity, but also for future reference.

In MASSACHUSETTS there are three Colleges, viz.

1. *Harvard College*, or the *University of Cambridge.* This is the oldest institution of the kind in North-America. It was founded in 1638.

In 1636 the General Court of Massachusetts gave £400 towards the support of a public school at *Cambridge*, then called *Newtown.* Mr. JOHN HARVARD, an eminent clergyman, dying in 1638, left near £800, being the greater part of his estate, to the same object. In consequence of this

donation, the General Court, the same year, enlarged the plan, and extended the powers of the institution, and gave it the name of *Harvard College*. Degrees were first conferred in the year 1642.

This institution has to acknowledge the munificence of many liberal individuals. In 1699, the Hon. WILLIAM STOUGHTON, Lieutenant-Governor of the province, erected a Hall for the accommodation of students, which was called by his name. *Holden Chapel* was erected in 1745, at the expense of the widow and daughters of SAMUEL HOLDEN, one of the Directors of the Bank of England. *Hollis-hall*, erected in 1762, was so called in honour of THOMAS HOLLIS, of London, who made numerous and large benefactions to the College. Besides these, the donations of THOMAS HANCOCK, Drs. EZEKIEL and ABNER HERSEY, WILLIAM ERVING, Esquire, and several others, were liberal, and have contributed to extend the plan and usefulness of the College. All the Professorships bear the names of the gentlemen who either gave a fund for their support, or contributed towards this object.

The immediate *Officers* of this College are, a President (who is at present the Rev. Dr. JOSEPH WILLARD); HOLLIS *Professor of Divinity*; HANCOCK *Professor of the Hebrew and Oriental Languages*; HOLLIS *Professor of Mathematics and Natural Philosophy*; HERSEY *Professor of Anatomy and Surgery*; HERSEY *Professor of the Theory and Practice of Physic*; ERVING *Professor of Chemistry and Materia Medica*; and *four* Tutors.

The *Board of Overseers* consists of the *Governor*, *Lieutenant-Governor*, the members of the *Council* and *Senate*, and the *Ministers* of the Congregational Churches in *Boston*, *Cambridge*, *Watertown*, *Charlestown*, *Roxbury* and *Dorchester*.

The number of *Students* in this College may be estimated, on an average, from 180 to 200. The greater part of these board in the College. The expenses *necessarily* arising to each student within the walls, *i. e.* boarding, tuition, room-rent, &c. may be estimated at about 120 dollars *per annum*.

The *course of Instruction* in this College is as follows: *First* year, the Students read *Sallust*, *Livy*, *Horace*, *Terence*, *Homer*, *Xenophon*; besides these, they attend to Rhetoric, MILLOT's Elements of Universal History, PIKE's Arithmetic, LOWTH's Grammar, French and Hebrew languages, WATTS's LOGIC, MORSE's Geography, and the use of the globes. *Second*

year, Classics as before; French and Hebrew languages, Logic, Geography, Arithmetic, and History continued; LOCKE on the Understanding, BLAIR's Lectures, Mensuration, and Algebra. *Third* year, the Classics before enumerated; French, Hebrew, History, and LOCKE continued; with the addition of EUCLID's Elements, ENFIELD's Philosophy, Trigonometry, Conic Sections, Mensuration of Heights and Distances, Navigation, English Composition, and Forensic Disputations. *Fourth* year, BURLAMAQUI's Elements of Natural and Political Law, PALEY's Philosophy, Dialling, Spheric Geometry and Trigonometry, FERGUSON's Astronomy, DODDRIDGE's Theological Lectures, English Composition, &c.

The *Library* is the largest excepting one, in the United States. It consists of between 13,000 and 14,000 volumes. The *Philosophical Apparatus* is ample, and generally said to be the best in America. The *Funds* are large, but their precise amount is not known. The annual Commencement is on the last Wednesday in August. At the end of the year 1800, more than 3,600 Students had received the honours of the institution.

2. *Williams' College.* This institution was incorporated as a College in 1793, and is situated in *Williamstown*, in the County of Berkshire. It is named in honour of Col. EPHRAIM WILLIAMS, who died in 1755, and who left a large portion of his estate for the establishment and support of a seminary of learning. This seminary was first incorporated as an Academy in 1785. Its plan was extended, and a Charter, constituting it a College, given in the year beforementioned.

The College *Buildings* are, two large edifices of brick; one 82 feet long, 42 feet wide, and four stories high; containing 28 rooms for the accommodation of students, and a Chapel: the other 104 feet long, 38 feet wide, and also four stories high; containing 32 rooms, with a bed-room and study adjoining to each. The former of these buildings was erected in 1788, at the expense of 11,700 dollars; the latter, in 1798, at the expense of 12,400 dollars. Besides these, there are a dwelling-house for the President, and a large and elegant Church, to the erection of which the Trustees contributed, on condition that the officers and students of the College should always be accommodated therein on the Lord's days, and have the use of it on public occasions.

The *Funds* of this College are small, consisting of money on interest, amounting to about 3,500 dollars, and a town-

ship of land in the province of Maine, worth, perhaps, from 7,000 to 10,000 dollars. The income, from tuition, room-rent, &c. is about 2,000 dollars annually. The institution has been hitherto supported by Col. WILLIAMS's donation, by subscriptions among the inhabitants of Williamstown and its vicinity, by the product of a lottery, and by a grant of two townships of land in the province of Maine by the Legislature of the State.

The *Officers* of this College are, a President (who is at present the Rev. Dr. EBENEZER FITCH) and four Tutors. The institution is governed by sixteen gentlemen, of whom the President for the time being is one, and always presides at their meetings.

The number of *Students* at the close of the year 1800 was 93. They are boarded in the College, and in private houses in the vicinity. The price of board, tuition, washing, wood, &c. amounts annually to about 100 dollars.

The *Library* consists of about 600 volumes. Two literary societies belonging to the College have a library in common, consisting of 300 volumes more. The *Philosophical Apparatus* is small; but well selected and good, so far as it goes. A good *Telescope*, and some other articles are much wanted to render the collection tolerably complete.

The *Course of Instruction* is nearly similar to that which was detailed as taking place in *Harvard College*. The principal points of difference are the following—There appears to be rather less attention paid to Classic literature here than at Harvard. PRIESTLEY's Lectures on History are studied, by the Junior class, instead of MILLOT's Elements; EDWARDS on the Will, by the Senior class, in addition to LOCKE; and in some instances the Senior class has recited Dr. HOPKINS's System of Theology; in others DODDRIDGE's Lectures.

The annual Commencement is on the first Wednesday of September; and at the close of the year 1800 about 80 students had received the honours of the College.

3. *Bowdoin College.* This College was instituted in 1794. It is situated at *Brunswick*, in the Province of Maine; and was so called in honour of the late Governor BOWDOIN.

This institution is yet in its infancy. There are a President (who is the Rev. JOSEPH M'KEAN), lately appointed, and a Professor of Languages. With respect to the state of the funds, the number of the students, the course of instruction, &c. no information has been obtained. But as the

College has not been organized more than three or four years, its constitution cannot yet be very complete or mature.

In NEW-HAMPSHIRE there is one College, viz.

Dartmouth College, which was incorporated in 1769. This seminary is situated in Hanover, in the county of Grafton, and derives its name from the Earl of DARTMOUTH, one of its principal benefactors. The Rev. Dr. ELEAZER WHEELOCK was the founder, and the first President. (See p. 374.) The first College buildings were erected in 1770, and a large addition made to them in 1786.

The *Government* of the College is in the hands of twelve trustees, seven of whom make a quorum. By them all laws and appointments are made, and to them the officers are responsible.

The *Officers* are, a President (who is at present JOHN WHEELOCK, LL. D. the son of the first President); a Professor of Mathematics and Natural Philosophy; a Professor of the Latin and Greek Languages; a Professor of Chemistry and Medicine, and two Tutors.

The *Course of Instruction*. Students must be qualified for admission, by a knowledge of the Greek Testament, of Virgil, and Cicero's Orations, and of the principles of Arithmetic; and when admitted, usually continue four years before they receive degrees. The *Freshman* class attend to the Greek and Latin authors, the principles of composition, criticism, rhetoric, &c. The *Sophomore* class to Geography, Logic, and the Mathematics. The *Junior* class to Natural Philosophy, Moral Philosophy, and the higher branches of the Mathematics: the Sophomores and Juniors, both continuing to devote a portion of their time to the Classics. The *Senior* class attend to Metaphysics, the principles of Civil Law, Divinity, Chemistry, and Natural History.

The *Funds* of this College consist chiefly of lands granted by New-Hampshire and Vermont, most of which are still unproductive. Of these lands there are about 40,000 acres.

The College *Library* consists of about 3,000 volumes. The *Philosophical Apparatus* is sufficient for a common course of experimental philosophy.

The number of *Students* in 1801 was 140. The greater part of these are accommodated in the College. The annual expense of each individual, including boarding, tuition, &c. except cloathing and other contingencies, is about 100 dollars.

In 1801 *eight hundred students* had graduated at this College since its establishment.

In RHODE-ISLAND there is *one* College, viz.

Rhode-Island College. The charter for this seminary was obtained in 1764. The Rev. JAMES MANNING, of New-Jersey, had the principal agency in founding it, and was chosen the first President. The College edifice was erected in 1770. It is a spacious building, 150 feet long, 46 feet wide, and four stories high, and contains 56 apartments.

The *Government* of the College is vested in a Board of Trustees. The immediate *Officers* are, a President, Professor of Mathematics and Natural Philosophy, Professor of Law, and three Tutors.

The *Funds* of this institution are small, amounting to little more than eight thousand dollars, chiefly raised by subscription.

The *Philosophical Apparatus* is tolerably complete. It has lately received considerable accessions by the liberality of SAMUEL ELAM, Esq. of New-Port. The *Library* contains about 3000 volumes.

The number of students in 1801 was 107. They are chiefly boarded in the College; and the necessary annual expense of each is about 100 dollars.

There is by no means a general taste for literature in this State. Of the 107 students above mentioned only 12 belonged to the State. The greater part of the rest were from Massachusetts, and a number from the southward, especially from South-Carolina.

In CONNECTICUT there is *one* College, viz.

Yale College, at New-Haven. This institution was incorporated in 1701, and was the third College established in the American Colonies. It received this name in honour of THOMAS YALE, Esq. who had been Governor of Fort St. George, in India, and who was one of its liberal benefactors.

The *Officers* of this College are, a President (now the Rev. Dr. TIMOTHY DWIGHT); a Professor of Divinity; Professor of Mathematics and Natural Philosophy; Professor of Oriental Languages; and three Tutors.

The number of *Students* in this College is believed to be greater than in any other in the United States. In 1801 they amounted to 217; and the number since that time has probably increased. The students are chiefly boarded in the College, and the annual expense attending the accommodation of each is from 120 to 150 dollars.

The College *Buildings* are spacious and elegant. The *Li-*

brary consists of between 3,000 and 4,000 volumes. The *Philosophical Apparatus* is considered among the best in our country. The *Funds* are large, but the amount of them is not known to the writer.

The annual Commencement is on the second Wednesday of September; and the number of students who had graduated at this College, at the end of the year 1800, was about 2,600.

The State of VERMONT has *one* College, viz.

Middlebury College, situated in the town of Middlebury, in Addison County. This seminary was founded in 1800, and is yet in an infant state.

The *Government* of this College is vested in a Board of Trustees, consisting of sixteen gentlemen. The *Officers* in 1801 were, a President (the Rev. Mr. J. ATWATER), and a Tutor. One or more Professors have probably been elected since.

The *Funds* consist chiefly of lands, which, though little productive at present, promise hereafter to afford an ample support to the institution.

The number of *Students* in the College, and Grammar School annexed to it, was, in 1801, about 30. Since that time it is believed they have increased. They are all boarded in private houses. The annual expense of each, including boarding, washing, tuition, &c. is from 80 to 90 dollars.

The *Library* is small, but increasing. The *Philosophical Apparatus* is incomplete; but measures have been adopted to render it less so; and, on the whole, the institution has a prospect of becoming, at no great distance of time, extensively useful.

NEW-YORK has *two* Colleges, viz.

1. *Columbia College*, in the city of New-York. This institution was founded in 1754, under the title of *King's College*, which name, after the Revolution, was exchanged for the one which it now bears. (See p. 355 of this volume.)

This College is under the direction of a Board of Trustees. The immediate officers are, a President (at present the Rev. Dr. BENJAMIN MOORE, Bishop of the Protestant Episcopal Church in the State of New-York); a Professor of Moral Philosophy, Logic, Rhetoric, and Belles Lettres; a Professor of the Greek and Latin Languages, and of Grecian and Roman Antiquities; a Professor of Mathematics, Natural Philo-

Sophy, Chronology, and Geography; and a Professor of Chemistry. Besides these, there are in the Medical School attached to the College, a Dean of Faculty; a Professor of Anatomy and Surgery; a Professor of the Institutes of Medicine; a Professor of Obstetrics; and a Professor of Materia Medica and Botany.

To qualify Students for admission into this College, it is necessary that they should be able to read the four Gospels in Greek, together with four books of *Virgil's Æneid*, four books of *Cæsar's Commentaries*, and four Orations of *Cicero* against *Cataline*.

The course of instruction in this College is as follows:

The *first* year, *Sallust*, *Livy*, two books of *Virgil's Georgics*, part of the *New-Testament* in Greek, from 20 to 30 Dialogues of *Lucian*, and two books (generally) of *Xenophon*. To these are added, Arithmetic, Algebra, a small portion of Euclid, and Latin Composition.

The *second* year, *Virgil's Georgics* finished, *Horace's Odes*, and part of his *Satires*, the Orations of *Demosthenes*, an additional portion of *Xenophon*, and two books of *Homer*. With these are mingled, English Grammar, six books of *Euclid*, Modern Geography, Trigonometry, with its various applications to Surveying, Navigation, &c. Latin and English Composition.

The *third* year, *Horace's* Epistles and Art of Poetry, six books of *Homer*, Conic Sections, Spheric Trigonometry, with its application to Astronomical problems, Ancient Geography, Rhetoric, and English Composition.

The *fourth* year, Natural Philosophy, Logic, and Moral Philosophy, *Terence*, *Longinus*, Chemistry, and English Composition. Public speaking once a week through the whole course.

It is believed that there is no other College in the United States, in which the Greek and Latin Languages are studied with so much care, and to such an extent as in this institution.

This College has a *Library*, consisting of about 3000 volumes. Its *Philosophical Apparatus* is among the best in the United States. The number of matriculated Students is about 125. Besides these, there are the Students in the Medical School, and some others, who sustain a less formal connection with the institution.

2. *Union College*, at Schenectady. This College was founded in 1795, and though its growth has not been very rapid, it bids fair to be an useful institution.

The College *Officers* are, a President (now the Rev. Dr. MAXCEY); a Professor of Mathematics and Natural Philosophy; and two Tutors.

The number of *Students* in 1801 was about 43. They were at that time boarded in private families; but are now accommodated in the College edifice, which is spacious and convenient.

The Library consists of 800 volumes. The *Philosophical Apparatus* is a respectably large and good one. The *Funds* of the institution are small.

The State of NEW-JERSEY has *one* College, viz.

Nassau-Hall, or the *College of New-Jersey*, at Princeton. This College was founded in 1746, at Elizabeth-Town, from which place it was removed in 1747 to New-Ark, and in 1757 to Princeton, where it has since continued. About this time the large College edifice was erected, 180 feet long, 54 feet wide, and four stories high; capable of accommodating a large number of Students. (See Chapter xxvi. p. 345, of this work.)

This building, together with the Library, much of the Philosophical Apparatus, &c. was destroyed by fire in the beginning of the year 1802. Since that time, however, by the aid of liberal benefactions from every part of the United States, it has been rebuilt, and the whole institution placed under new advantages and regulations, which promise a degree of respectability and usefulness greater than it had ever before attained.

The *Government* of this College is vested in twenty-four Trustees, including the President of the College, and the Governor of the State for the time being. The *Officers* of the College are, a President (the Rev. Dr. SAMUEL S. SMITH); a Professor of Languages; a Professor of Divinity; a Professor of Mathematics, Natural Philosophy and Chemistry; and three Tutors.

The *Library* is now small; but measures have been lately taken, which will probably soon render it one of the largest and best College Libraries in the United States. The *Philosophical Apparatus* is a respectable one, and also likely to be improved.

The course of instruction in this Seminary is not accurately known to the writer. It is believed, however, that this is one of the institutions in the United States in which *Classical* learning receives more than usual attention; and in which, be-

sides an advantageous mode of pursuing most of the objects of study, polite literature is cultivated with great success.

The number of Students in this College at the close of the year 1803, amounted to about 150; a greater number than ever before belonged to the institution. They are chiefly boarded in the College edifice. The annual expense of each is not certainly known, but is believed to be from 150 to 170 dollars.

The annual Commencement in this College is on the last Wednesday of September.

In PENNSYLVANIA there are *three* Colleges, viz.

1. The *University of Pennsylvania*, in Philadelphia. This institution was formed in 1791, by the union of the *College of Philadelphia*, founded in 1753, (see page 352) and another institution, formed immediately after the Revolutionary war, under the same title which the united seminaries now bear.

The *Officers* of this institution are, a Provost (this place is now vacant), who is also Professor of Natural Philosophy; a Vice-Provost, who is also Professor of Logic and Moral Philosophy; a Professor of Greek and Latin Languages; a Professor of Mathematics; a Professor of English and Belles Lettres; and a Professor of Oriental Literature. Besides these, the instructors in the *Medical School* are, a Professor of Anatomy; a Professor of the Institutes and Practice of Medicine; a Professor of Materia Medica, Natural History, and Botany; and a Professor of Chemistry. This Medical School is much more frequented by Students than any other in the United States. (See vol. i. p. 320. and vol. ii. p. 393.)

The *Library* of this seminary consists of about 1000 volumes. The *Philosophical Apparatus* is tolerably good. The whole number of *Students* belonging to the institution, at the close of the year 1803, was about 160; but of these only a small portion actually belonged to the classes in College.

2. *Dickinson College*, in Carlisle. This College was founded in the year 1783, and received the name which it bears in honour of JOHN DICKINSON, Esquire, the celebrated political writer, and its most liberal benefactor. (See page 382.)

The *Government* of this College is in the hands of a Board of Trustees. The *Officers* are, a President (now the Rev. Dr. NISBET); Vice-President; and two Professors. The *Library* consists of about 3000 volumes. The *Philosophical Apparatus* is small. The amount of the *Funds* is not known to the writer.

The number of *Students* in this College is believed to be about 45 or 50. They are boarded in private families in the town.

3. *Franklin College*, in Lancaster. This institution was founded in 1787, for the particular accommodation of the *German* inhabitants of Pennsylvania, to enable them to educate their youth in their own language, and in conformity with their own habits. The Principal is a German Lutheran, and the Vice-President a Calvinist. Its present state is not known to the writer; but it is believed not to be in a very flourishing condition.

In *Maryland* there are *four* Colleges, viz.

1. *St. John's College*, at Annapolis. This College was founded in the year 1784; and, together with the seminary which will be next mentioned, forms the "University of Maryland."

This College is governed by twenty-four Trustees. Its *Officers* are, a President (now JOHN M'DOWELL, Esq.) and two Professors. Its *Funds* are chiefly derived from voluntary subscription, and an annual grant of £1750 from the State, aided by the income from the Students for tuition. Its Library is moderately large; and its *Philosophical Apparatus* only tolerably good.

In 1801 the number of Students in this institution was about 90.

2. *Washington College*, in Chestertown, instituted in 1782, and, like the preceding, placed under the direction of twenty-four Visitors or Trustees. In 1787 a permanent fund was granted to this institution, by a law of the State, of £1250 a year; which has been since continued. No other particulars concerning this College are known to the writer.

3. The *Catholic College*, at Georgetown, on the Potowmac. This institution is under the particular direction of the Roman Catholics, who form a considerable part of the population of Maryland. The writer has not been so happy as to succeed in his attempts to obtain particular information concerning this seminary.

4. *Cokesbury College*, at Abingdon, in Harford county. This College was founded by the Methodist Church in 1785, and intended for the education of youth belonging to that communion. It is so called in honour of the Rev. THOMAS COKE, and the Rev. FRANCIS ASBURY, Bishops of the Methodist Episcopal Church. No particulars are known to the writer respecting the Officers, Funds, number of Students, &c.

In *Virginia* there are *two* Colleges, viz.

1. *William and Mary College*, at Williamsburgh. This institution was incorporated in 1693, by King WILLIAM and Queen MARY, whose names it bears. The credit of obtaining the Charter, and of organizing the establishment, is due to the Rev. JAMES BLAIR. (See p. 335.) This was the second College founded in the American Colonies.

The *governing* powers in this College are vested in a Board of Visitors, not exceeding twenty. The *Officers* are, a President (now the Rev. Dr. MADISON, Bishop of the Protestant Episcopal Church in the State of Virginia), who is also Professor of Moral and Natural Philosophy; a Professor of Mathematics; a Professor of Ancient Languages; a Professor of Modern Languages; a Professor of Law; and a Professor of Chemistry.

In the *Moral* School, in this College, the course consists of, 1. Logic and the Philosophy of the Human Mind. On these subjects, the works of DUNCAN, REID, and Professor STEWART are studied. 2. Rhetoric and Belles Lettres. Here Dr. BLAIR's Lectures are chiefly used. 3. Moral Philosophy. In this department the author studied is PALEY. 4. Natural Law. RUTHERFORTH and BURLAMAQUI, &c. 5. Law of Nations. VATTEL and MARTENS. 6. Politics. LOCKE, MONTESQUIEU, ROUSSEAU, &c. 7. Political Economy. SMITH's Wealth of Nations. In *Natural Philosophy* there is a regular course of Lectures, attended with every necessary experiment. In this course, the works generally referred to, and recommended, are those of ROWNING, HELSHAM, MARTIN, DESAGULIERS, MUSCHENBROECK, CAVALLO, ADAMS, LAVOISIER, CHAPTAL, &c.

In the department of *Law*, the Professor takes an extensive view of the general principles of government; comments on the great work of Judge BLACKSTONE; explains the structure and principles of the American governments, and particularly of the government of Virginia. In teaching the ancient and modern *Languages*, the usual course is pursued. Though all the Students are not compelled to attend to the former, yet a competent knowledge of them is necessary in order to the taking of a regular degree.

No particular period of residence at this College is required. All students who are prepared to go through the prescribed examination may receive its honours.

The number of *Students* in this College, in the beginning of the year 1801, was 53. The *Library* contains about 3000 volumes. The *Philosophical Apparatus*, when procured in

1768, was well chosen, and tolerably complete. It cost, at that time, betwcen 2000 and 3000 dollars. Having been in constant use for more than 30 years, it stands in need of repairs, and is less complete than at first.

The *Funds* of this College were much diminished by the Revolution. They now amount to about 4500 dollars *per annum*—derived from the rents of certain lands; a certain proportion of Surveyor's fees; and the interest of monies loaned.

There is probably no College in the United States in which political science is studied with so much ardour, and in which it is considered so pre-eminently a favourite object, as in this.

2. *Hampden Sidney College*, in Prince Edward County. This seminary was founded about the year 1774, chiefly by the exertions of the Rev. SAMUEL S. SMITH, now President of the College of New-Jersey.

This College has scarcely any *Funds*. The *Philosophical Apparatus* is small. Its *Library* consists of about 500 volumes. The number of Students may be estimated, in general, at about 60 or 70.

NORTH-CAROLINA has *one* College, viz.

The *University of North-Carolina*, in Chapel-Hill, Orange County. This institution was incorporated in 1789; and the Legislature of the State, by subsequent acts, made large grants for its support. The College buildings were erected in 1794; and tuition, it is believed, was commenced in 1795.

The *Funds* of the University of North-Carolina are large. They consist of £14,777 in cash, public stock and bonds; of all the property in the State which is, or shall hereafter be escheated; of 94,000 acres of land, in different parts of the State; and of other real property to a considerable amount.

No other particulars concerning this institution are known to the writer.

SOUTH-CAROLINA has *four* Colleges, viz.

1. *Winnesborough College*, in Winnesborough, in Fairfield County. This institution was founded about the year 1795. It is yet in an infant state; the Funds, number of Students, &c. being small.

2. A College in the city of *Charleston*. This was instituted about the same time with the preceding; but has not yet attained any great degree of respectability. The Trustees have, in a few instances, conferred the degree of Bachelor of

Arts; but have not, it is believed, attempted to bestow literary honours of an higher grade.

3. A College at *Cambridge*, in the district of Ninety-six. This was incorporated at the same time with the two last mentioned seminaries; but it has dwindled into an unimportant school.

4. A College at *Beaufort*, also incorporated about the year 1795. This institution has yet been scarcely organized; but agreeable anticipations are formed of its respectability and usefulness.

The reason why no College in this State has risen to much respectability is, that the Legislature, instead of directing their aid and patronage to *one*, which, under these circumstances, might have flourished, have divided their attentions and grants among *several*. The consequences have been very unfriendly to the progress of literature.

GEORGIA has *one* College, viz.

The *University of Georgia*, founded in 1785. This institution is not yet fully organized. Liberal provision has been made by the State for its support; and when the buildings and other arrangements shall be completed, it bids fair to be an extensively useful seminary.

KENTUCKY has *one* College, viz.

The *Transylvania College, or University*, at Lexington. This seminary was formed by the union of two academies in December, 1798, and styled by the act of union the *Transylvania University*.

The *Government* of this institution is vested in a Board of Trustees. The Officers are, a President (at present the Rev. Mr. MOORE), who is also Professor of Logic, Metaphysics, Moral Philosophy, and Belles Lettres; a Professor of Mathematics, Natural Philosophy, Astronomy, and Geography; a Professor of the Greek and Latin Languages; a Professor of Law; a Professor of Medicine and Surgery; and a Professor of Chemistry.

The *Funds* of this University consist chiefly of lands, and may be considered as amounting to 179,000 dollars. The *Library* consists of more than 1300 volumes; besides a *Law* Library, and a *Medical* Library, for the Students of Law and Medicine. The *Philosophical Apparatus* is respectable, and measures have been taken to render it still more so.

The number of *Students* at this seminary, in 1801, was

about 70. Of these 19 were Students of *Law*, and six of *Medicine*. The annual expense of boarding, tuition, &c. is from 80 to 100 dollars.

TENNESSEE has *one* College, viz.

Greenville College, founded in the year 1794. The *Funds* of this institution are very small. It has a *Library*, consisting of 2000 volumes; a good *Philosophical Apparatus*, and about 20 *Students*.

The *Officers* of the College are, a President (at present the Rev. HEZEKIAH BALCH), and one other Professor.

American Editions of the Bible. p. 387.

I have lately ascertained that, prior to AITKEN's edition of the Bible, in 1781, there was an excellent edition of the German Bible, in *Quarto*, printed in the year 1776, by CHRISTOPHER SOWER, of Germantown, near Philadelphia. Mr. SOWER was a man of large property, and occasionally a preacher in the German Churches in Pennsylvania. He undertook and executed this work at his own risk, and had the honour of printing the first Quarto Bible that ever issued from an American press. It is one of the best specimens of typography that our country has produced.

NOTES ON THE RECAPITULATION.

Reciting, instead of Printing, among the Ancients. p. 417.

IT is well known, that the ancients, being ignorant of the art of printing, were obliged to employ public rehearsals as the best means of publishing new compositions. In early times this was the case with writers of the first class. HERODOTUS recited his history in different portions, at the Olympic Games; and other writers of great reputation did the same.

TACITUS speaks in the following language of the author, who is obliged to employ this method of publishing his works. ——"Cùm toto anno, per omnes dies, magna noctium

parte, unum librum extudit et elucubravit, rogare ultro et ambire cogatur, ut sint, qui dignentur audire: et ne id quidem gratis: nam et domum mutuatur, et auditorium extruit, et subsellia conducit, et libellos dispergit: et ut beatissimus recitationem ejus eventus prosequatur, omnis illa laus intra unum aut alterum diem, velut in herbâ vel flore præcepta, ad nullam certam et solidam pervenit frugem: nec aut amicitiam inde refert, aut clientelam, aut mansurum in animo cujusquam beneficium, sed clamorem vagum, et voces inanes, et gaudium volucre."—*C. Cornelii Taciti Dial. de Oratoribus.* ix.

PLINY, in one of his *Letters*, gives a lively description of the disadvantages which authors had to encounter in this mode of publishing their compositions.

" Magnum proventum poetarum annus hic attulit. Toto mense Aprili nullus fere dies, quo non recitaret aliquis. Tametsi ad audiendum pigrè coitur. Plerique in stationibus sedent, tempusque audiendi fabulis conterunt, ac subinde sibi nuntiari jubent, an jam recitator intraverit, an dixerit præfationem, an ex magnâ parte evolverit librum? Tum demum, ac tunc quoque lentè, cunctanterque veniunt, nec tamen remanent, sed ante finem recedunt; alii dissimulanter, ac furtim; alii simpliciter, ac liberè. Sed tanto magis laudandi probandique sunt, quos a scribendi recitandique studio hæc auditorum vel desidia, vel superbia non retardat. Equidem prope nemini defui: his ex causis longius, quam destinaveram, tempus in urbe consumpsi. Possum jam repetere secessum, et scribere aliquid, quod non recitem; ne videar, quorum recitationibus affui, non auditor fuisse, sed creditor. Nam, ut in cæteris rebus, ita in audiendi officio, perit gratia, si reposcatur." *Plin. lib. i. Ep.* 13.

The poets who could not obtain an audience otherwise, frequented the baths, and other public places, in order to fasten on their friends, and procure an opportunity of reciting their compositions. JUVENAL tells us, that the groves and marble columns of *Julius Fronto* resounded with the vociferations of the reciting poets.

> Frontonis platani, convulsaque marmora clamant
> Semper, et assiduo ruptæ lectore columnæ.
> Exspectes eadem a summo, minimoque poeta.
>
> Sat. i. ver. 12.

The same satirist suggests, that the poet who wished his works to become known, might borrow an house for the purpose of public reading; and that the person who accom-

modated the writer, might place his friends and freedmen on the back seats, with directions to be liberal in their applause.

> ——— Et si dulcedine famæ
> Succensus recites, Maculonus commodat ædes.
> Scit dare libertos extremâ in parte sedentes
> Ordinis, et magnas comitum disponere voces.
> Nemo dabit regum, quanti subsellia constent.
>
> Sat. vii. ver. 39.

In another place, speaking of STATIUS, a popular poet, he says:

> Curritur ad vocem jucundam, et carmen amicæ
> Thebaidos, lætam fecit cum Statius urbem,
> Promisitque diem; tantâ dulcedine captos
> Afficit ille animos, tantaque libidine vulgi
> Auditur; sed cum fregit subsellia versu,
> Esurit, intactam Paridi nisi vendat Agaven.
>
> Sat. vii. ver. 82.

From a passage in HORACE it would seem that, in his day, writers of the first class disdained to employ this method of obtaining literary fame.

> Non recito cuiquam, nisi amicis, idque coactus;
> Non ubivis, coramve quibuslibet. In medio qui
> Scripta foro recitent, sunt multi; quique lavantes;
> Suave locus voci resonat conclusus. Inanes
> Hoc juvat, haud illud quærentes, num sine sensu,
> Tempore num faciant alieno.
>
> Sat. lib. i. Sat. iv. ver. 73.

Influence of Printing. p. 418.

The following remarks of Professor STEWART, on the probable influence of printing upon the future interests of society, are worthy of attention. Whatever may be thought of the truth or falsehood of the opinions which they express, they afford to the contemplative mind materials for very interesting reflections.

"The influence which printing is likely to have on the future history of the world, has not, I think, been hitherto examined, by philosophers, with the attention which the importance of the subject deserves. One reason for this may, probably, have been, that, as the invention has never been made but once, it has been considered rather as the effect of a fortunate accident, than as the result of those general causes on which the progress of society seems to depend. But it

may be reasonably questioned, how far this idea be just: for, although it should be allowed that the invention of printing was accidental, with respect to the individual who made it, it may, with truth, be considered as the natural result of a state of the world, when a number of great and contiguous nations are all engaged in the study of literature, in the pursuit of science, and in the practice of the arts: insomuch, that I do not think it extravagant to affirm, that, if this invention had not been made by the particular person to whom it is ascribed, the same art, or some analogous art, answering a similar purpose, would have infallibly been invented by some other person, and at no very distant period. The art of printing, therefore, is entitled to be considered as a step in the natural history of man, no less than the art of writing; and they who are sceptical about the future progress of the race, merely in consequence of its past history, reason as unphilosophically as the member of a savage tribe, who, deriving his own acquaintance with former times from oral tradition only, should affect to call in question the efficacy of written records, in accelerating the progress of knowledge and of civilization.

"What will be the particular effects of this invention, (which has been, hitherto, much checked in its operation, by the restraints on the liberty of the press in the greater part of Europe) it is beyond the reach of human sagacity to conjecture; but, in general, we may venture to predict with confidence, that, in every country, it will gradually operate to widen the circle of science and civilization; to distribute more equally, among all the members of the community, the advantages of the political union, and to enlarge the basis of equitable governments, by increasing the number of those who understand their value, and are interested to defend them. The science of legislation, too, with all the other branches of knowledge which are connected with human improvement, may be expected to advance with rapidity; and, in proportion as the opinions and institutions of men approach to truth and to justice, they will be secured against those revolutions to which human affairs have always been hitherto subject. *Opinionum enim commenta delet dies, naturæ judicia confirmat.*"

"Nor must we omit to mention the value which the art of printing communicates to the most limited exertions of literary industry, by treasuring them up as materials for the future examination of more enlightened inquirers. In this respect the press bestows upon the sciences an advantage somewhat ana-

logous to that which the mechanical arts derive from the division of labour. As in these arts, the exertions of an uninformed multitude are united by the comprehensive skill of the artist, in the accomplishment of effects astonishing by their magnitude, and by the complicated ingenuity they display; so, in the sciences, the observations and conjectures of obscure individuals on those subjects which are level to their capacities, and which fall under their own immediate notice, accumulate for a course of years; till at last some philosopher arises, who combines these scattered materials, and exhibits, in his system, not merely the force of a single mind, but the intellectual power of the age in which he lives."—*Elements of the Philosophy of the Human Mind*, Chap. iv. Sect. 8.

I agree with the Professor in thinking, that "the influence which printing is likely to have on the future history of the world, has not been examined, by philosophers, with that attention which the importance of the subject deserves." But he has only presented the fair side of the picture. Experience proves, that this precious art is not devoted to laudable purposes alone; and that in estimating its future influence on human happiness, we must take into the account the abuses to which it is liable, as well as the advantages which it tends to produce.

END OF THE FIRST PART.

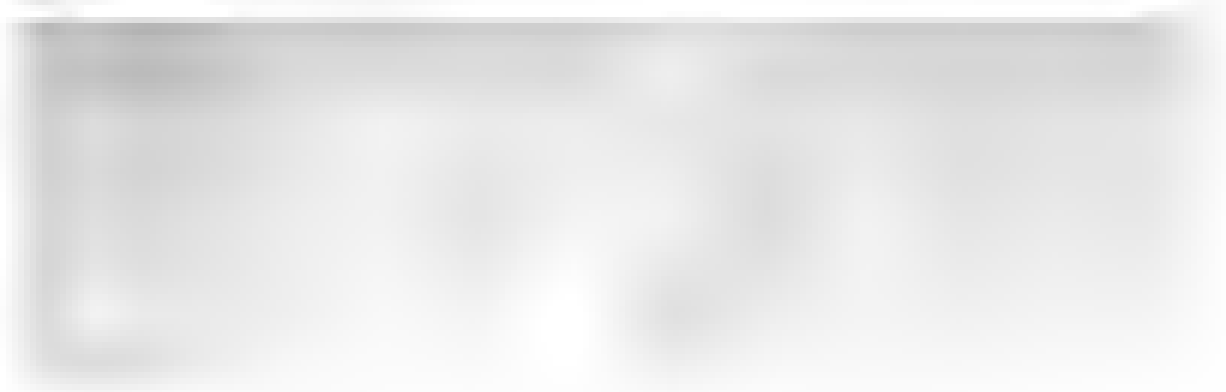
ERRATA.

VOL. I.

Page 47, line 20, for " ærial" read aerial.
74, 3, for " eleven" read ten.
100, 9, for " consigns" read assigns.
140, 12, for " tree" read plant.
200, 5, for " KLAHROTH" read KLAPROTH.
344, 25, for " Sierra Leona" read Sierra Leone.
345, 17, dele " FLACOURT."
347, 25, for " GEORGE" read GIORGI.
412, 1, for " VERNIX" read WENIX.
421, 1, for " MORGAN, of Great-Britain," read MORGHEN, of Italy.

VOL. II.

Page 5, line 8, for " were" read are.
14, 4, for " Glasgow" read Edinburgh.
31, 20, for " was" read is.
51, 11, dele " CASAUBON."
60, 24, for " DANZ" read DANTZ.
101, 24, for " part" read port.
175, 32, for " deny" read decry.
218, 1, for " MOUVAL" read MONVAL.
288, last line, for " corrupt" read correct.
388, note, for " EZEKIAH" read EZEKIEL.



THE NEW YORK PUBLIC LIBRARY
REFERENCE DEPARTMENT

This book is under no circumstances to be taken from the Building

Form 419

AUG 2 2 1966